Catalogue of the

ECONOMY HEATERS

MANUFACTURED BY THE

J. F. Pease Furnace Co.

BRANCHES:
NEW YORK,
BOSTON,
CHICAGO,
TORONTO.

GIES & CO LITH BUFFALO N Y

MAIN OFFICE & WORKS,

SYRACUSE, N.Y. U.S.A.

PLEASE ADDRESS:

O. S. KENDALL & CO.,

FOR SALE BY

JOHN DEMAREST,

General Manager New England Department, WORCESTER, MASS.

75 Union Street, - - BOSTON, MASS.

E. K. WEST, Pres't and Treas.
J. F. PEASE, Vice-Pres't.

SAMUEL STEPHENS, Sec'y.
W. K. WEST, Ass't Treas.

CATALOGUE

OF THE

ECONOMY

COMBINATION

STEAM AND WARM AIR HEATERS

AND

Warm Air Furnaces,

FOR WARMING

DWELLINGS, SCHOOL BUILDINGS, CHURCHES, HOTELS, BANKS, STORES, WAREHOUSES, &c.

PATENTED BY JOHN F. PEASE.

MANUFACTURED SOLELY BY THE

J. F. PEASE FURNACE COMPANY,

SYRACUSE, N. Y., U. S. A.,

And Toronto, Ont., Canada.

206 Water Street,
NEW YORK.

75 Union Street,
BOSTON.

82 Lake Street,
CHICAGO.

SYRACUSE, N. Y.:
THE SYRACUSE JOURNAL COMPANY, PRINTERS AND BINDERS.
1890.

1890.

INTRODUCTION.

In presenting our Tenth Annual Catalogue to our trade and the public, we desire to direct attention to a varied and successful line of heating apparatus, possessing graded capacities which adapt them to heating all moderate sized buildings.

We invite a careful investigation of the conspicuous merits embodied in the construction of our ECONOMY HEATERS, and to the common sense principles of Sanitary Heating and Ventilation employed in the erection and use of these heaters.

Our apparatus are manufactured especially for warming Residences, Churches, Schools, Stores, etc. With an experience of more than thirty-five years in this branch of manufacture, and with over sixty different sizes and kinds of heaters from which to offer a selection, we claim that our facilities and capabilities are unexcelled.

OUR HEATERS AND FURNACES

Have made an unapproachable record during the past ten years, in which period their reputation has been extended in to all parts of this continent where heaters are used. One of the strongest evidences of the popularity of the ECONOMY HEATERS is the large increase in each year's sales. Our grades have never been lowered to meet competition, and while from year to year many improvements have been introduced which enhance first costs, we have never recoursed to any methods which would impair the standard quality of our products. We largely attribute the success of our apparatus to an undeviating determination to EXCEL IN MERIT.

OUR PATENTS.

This Company is the sole owner of all the Patents granted by the United States and Canadian Governments to John F. Pease for the ECONOMY COMBINATION STEAM AND WARM AIR HEATERS, the ECONOMY WARM AIR FURNACES, and the Patent Dust Pipe Attachment, and the right to manufacture under these Patents (aside from one privilege granted on the Dust Pipe) is limited solely to the J. F. PEASE FURNACE CO., of Syracuse, N. Y., and the J. F. PEASE FURNACE CO., of Toronto, Canada. We have brought suits for infringement, and shall endeavor to protect our patents, whether infringed by manufacturers, dealers or users.

OUR SYSTEMS OF HEATING AND VENTILATING

Are based on well-recognized principles. We endeavor to conform to the requirements of natural law, and we believe that an impartial examination of the peculiar features embodied in our systems will convince any reasonable mind of the economy, correctness and superiority of our methods of heating, in connection with well established principles of ventilation. We recognize the sanitary importance, in fact the absolute necessity of adjusting our plants in such a manner as to supply a circulation of fresh, warm air,—PURE AND FREE FROM DUST OR GAS.

In the use of our ECONOMY WARM AIR FURNACES, the air supply is taken from the outside, warmed in its circulation around and over the heat radiating portions of the heater, moistened by water evaporation, and then uniformly distributed through warm air pipes and registers to the different appartments of the building.

The system of heating used in connection with our ECONOMY COMBINATION HEATER employs the same means of warming and distributing air from the outside, and in addition provides steam radiation, which is supplied from a steel boiler suspended over the fire inside of the combustion chamber of the heater. The specific advantages of this heater and system are described on some of the following pages.

STEAM RADIATION.

For the enlightenment of those who may be investigating systems of heating for the first time, and who are not familiar with the terms used to describe the different methods of obtaining heat from steam radiating surfaces, we will define the terms employed.

DIRECT RADIATION is obtained by placing steam radiators in the appartments to be heated, and supplying them with steam from mains running out of the boiler at the top of the heater. This system of radiation used alone costs less than the indirect system, but provides no means for ventilation.

INDIRECT RADIATION is obtained by placing coils of steam pipe, or radiators made for that purpose, in tin-lined, wood or metal boxes, in the basement of a building. These radiators (sometimes called stacks) are supplied with steam from the mains. An air supply is furnished by a duct running from the box to the outside, and the air is heated and passed up into the appartments through registers placed over the stacks, or is passed up into rooms in the second story by means of tin pipes in the same manner as warm-air from a furnace proper. This heat corresponds with the warm air from our COMBINATION HEATER, but we frequently employ the indirect steam system to heat rooms laterally distant from the main source in which it is not desirable to place direct radiation.

CONSTRUCTION OF OUR HEATERS.

THE RADIATING SURFACES.

All Patterns of the ECONOMY FURNACES and COMBINATION HEATERS are constructed so as not to condense the smoke, but to distribute all of the gaseous product of combustion so that it comes in direct contact with a LARGE AREA OF RADIATING SURFACE, preserving it at a uniform temperature and causing the smoke to enter the chimney with the least velocity and lowest temperature consistent with the conditions required for perfect combustion and proper draft.

THE ECONOMY WARM AIR FURNACES.

The Combustion Chamber and Radiators of the Regular, Double Radiator, and Low Down Patterns are thoroughly made. They are absolutely GAS AND DUST TIGHT. The portion of the dome directly over the fire is constructed of the best heavy wrought-plate steel, and is capable of standing any degree of heat necessary. The FIRE POTS, and, in fact, all our castings, are made extra heavy, and the shape of the fire the pot is such that it is impossible for the ashes to accumulate around its sides, which is the usual cause of destruction of fire pots by over heating. The Vapor Pan, for keeping the warmed air moist and healthful, is ample, and made of heavy cast iron. Our Casings are double, with an air space between, which effectually prevents external radiation of heat in the cellar. All Patterns of the ECONOMY FURNACES from No. 10 to 20 inclusive, and No. 25 of the Cast Iron can be set in brick. The heater to be set in brick, is constructed with a plainly finished, heavy cast iron Front (as shown in cut), Man-hole Door, Trench Plates, and Covering Bars.

THE COMBINATION STEAM AND WARM AIR HEATER.

Both the REGULAR and the LOW DOWN Patterns of this Heater have the same general construction as the corresponding patterns of the ECONOMY WARM AIR FURNACES, with the addition of a Vertical Tubular Plate Steel Boiler, and connections. All materials used in the construction of the Boiler are of the best quality throughout. Each boiler is tested before leaving the works at one hundred pounds pressure (both steam and hydraulic), while but from one-half to five pounds steam pressure are required for warming; thus insuring absolute safety.

Our BOILER, is suspended directly over the fire, the flames and product of combustion passing up through the flues and around its sides to the top of the combustion chamber. There is no possibility of heating any one portion of the boiler more than another causing unequal expansion and contraction—the inevitable result with sectional boilers, where the fire exposure is unequal. Another meritorious feature in the construction of our boiler is the manner in which the bottom of it pitches from the front to the rear; the return or draw-off pipe entering the boiler at its lowest point renders it easy to blow out any accumulation of grease and dirt. This valuable improvement is covered by our patents.

THE TROPIC WARM AIR FURNACE

Is constructed with the same cast iron Bottom, Ash Pit, and Fire Pot that are used with the Regular ECONOMY FURNACES. The Fire Pot is surmounted by a cast iron Flange Extension on which rests, securely fastened, gas tight, the Combustion Chamber of extra large dimensions, with a heavy wrought Plate Steel Dome, and has a large surface for radiating heat. It is provided with our Patent Dust Pipe Damper, Vapor Pan, etc., and can be used with either style of our grates.

THE ECONOMY CAST IRON FURNACE

Is provided with the same cast iron bottom, ash pit and patent dust pipe damper as the other patterns of the ECONOMY FURNACES. On top of the cast fire pot is placed, on a cup joint, a cast combustion chamber, having a pointed dome, surrounded with six columns, on the top of which is placed a cast circular radiator. The Furnace is a hard or soft coal burner and is fitted with the Anti-Clinker or T Grate.

It is in all respects a first-class cast iron Furnace, and is guaranteed to be the best of its class now on the market.

THE CHECK AND DRAFT DAMPERS

Of all our WARM AIR FURNACES are perfectly controlled from any upper room that may be desirable, obviating the necessity of going into the basement to regulate. On the COMBINATION HEATER the dampers are automatically regulated by the steam pressure.

OUR IMPROVED GRATES.

The Economy Anti-Clinker Flat Grate, which has given universal satisfaction, is generally used with our Heaters, but the McClave Patent Rocking and Dumping T Grate can be substituted when desired. Either of these grates can be shaken without opening the ash-pit door. Our manner of adjusting them in the top of the ash-pit admits of sufficient space, between the upper surface of the grate and the bottom of the fire pot, to run a poker over the top of the grate to clear away the clinkers from its entire surface. This should always be done before shaking. Either of these grates, as shown on page 26 of this Catalogue, are constructed to easily dump, partially or wholly, at pleasure, thus obviating all difficulty of clogging, which has been a constant source of complaint in the construction of many other furnace grates.

THE DUST PIPE AND DAMPER

Which we use in the construction of all of the ECONOMY HEATERS was patented by Mr. Pease, February 1, 1876. By the means of this original device, the dust which is caused by shaking the Grate, is drawn up into the Combustion Chamber, thereby avoiding any escape into the cellar. It is a most valuable feature to housekeepers.

THE ECONOMY
COMBINATION STEAM AND WARM AIR HEATER.

ADVANTAGES.

This improved apparatus combines certain advantages which place its capacity beyond the limit of comparison with any heater generating one kind of heat. It possesses the same capacity for producing indirect warm air which has made the ECONOMY FURNACES popular, and in addition combines the advantage of extra steam heat produced by the boiler and generated by the same fire.

The steam-producing portion of our Heater may be used either with direct or indirect radiation, the same as with all-steam apparatus, although the indirect heat produced by the furnace proper through the warm air pipes is equal to that from the indirect radiators, and is generated at a cost of at least 40 per cent. less. Inasmuch as water must be heated to a temperature of 212° before steam can be produced, it takes an all-steam apparatus a long time (especially in cold weather) to generate sufficient steam to radiate heat from the radiators, while the warm air pipes of our COMBINATION will throw out volumes of warm air very soon after the fire is lighted. This is the first heat produced. The amount of heat produced by our COMBINATION can be easily regulated, and NO MORE FUEL CONSUMED AT ANY TIME THAN IS REQUIRED TO MAKE THE HEAT DESIRED. We claim for our system of COMBINATION HEATING a decided superiority over all methods of heating by steam alone, for the mild weather of Spring and Fall. For such seasons a moderate amount of warm air can be generated from the furnace proper (through the warm air pipes running to the living rooms,) without being obliged to run the fire strong enough to make steam. As the weather becomes colder, the steam power can be increased as needed. With an all-steam heater, these advantages cannot be obtained ; depending upon the steam alone, as much fire and fuel are required to generate it on a chilly day in September, as when the mercury stands at zero in January, thereby consuming an unnecessary amount of fuel besides making the apartments uncomfortably warm. In fact our COMBINATION system embodies all the advantages of the steam system and many other merits that are most valuable, not possessed by all-steam heating apparatus. The facility with which the Heater can be controlled to produce any temperature required is an invaluable feature.

We also claim that our COMBINATION HEATER will produce a larger percentage of heat (steam and warm air combined) from a given amount of fuel than can be obtained from any other system of heating.

To make the truth of our statement emphatic, we herewith print an extract from a letter refering to economy in fuel :

(*Written After the Severe Winter of '86-'7.*)

OSWEGO, N. Y., April 9, 1886.

GENTLEMEN—I have used your COMBINATION HEATER during the past winter, and have only to speak of it in the highest terms. The Heater thoroughly heats my house, where formerly I employed a large Hot Air Furnace and two base burning stoves, and then was unable to heat every room ; but now every room is comfortably warm, and the consumption of coal has not been as great for the past winter as it was during that previous. I SHOULD THINK THE SAVING IN COAL WAS FULLY EQUAL TO TEN OR TWELVE TONS DURING THE SEASON. The management of this Furnace is very simple, and its operation has caused me no trouble or difficulty. It gives me great pleasure to write the above, and at any time when parties make inquiries in regard to this Furnace, you are at perfect liberty to refer them to me, and I will answer any inquiries they may make, to the best of my knowledge.

Yours very truly,

T. P. KINGSFORD.

THE ECONOMY COMBINATION ⊛ ⊛ STEAM AND WARM AIR HEATER.

THE REGULAR PATTERN.

THE STEAM GENERATOR.

This Heater is a Low Pressure Apparatus. Every Boiler is tested at the works to 100 pounds pressure, both steam and hydraulic, while we seldom use to exceed five pounds of steam, usually from one-half to three pounds is all that is required. The Boiler is suspended over the fire-pot and does not impair the draft of the heater. It consumes only about one pail of water per week after it is once filled.

CONSTRUCTION.

The Heater is constructed about the same as the corresponding pattern of the ECONOMY FURNACE and is fitted with either our Anti-Clinker or McClave T Grate as desired, excepting No. 20 which is fitted with T Grate only. It is provided with our Patent Dust Pipe which prevents the escape of dust when shaking the grate. It is furnished with a vapor pan for supplying the air with the necessary moisture. The whole apparatus is constructed of the best material throughout, with a view of simplicity and facility of erection and with reference to durability.

The apparatus is double cased, and is provided with diaphragm regulator, water funnel, try cocks, steam and water gauges, safety valve, poker, shaker, etc.

OPERATION.

The product of combustion after passing up through the flues and around the sides of the Boiler enters the radiator "R," surrounding the chamber "B," and after yielding nearly all the heat to be obtained finally passes into the chimney through the flue "F." The cold air enters the heat radiating chamber under the heater, circulates around the Fire Pot "g," Combustion Chamber "B" and Warm Air Radiator "R" and then passes up to the apartments through the Warm Air Pipes "E E E E." The steam generated by the Boiler is distributed to the steam radiators by the mains "M" and "M." The Draft Dampers are regulated automatically by the pressure of steam obviating all danger of over heating. The Heater requires but little personal attention except supplying the fuel and removing the ashes.

METHOD OF CLEANING

Our Combination Heaters is simple. In the spring after the fire is out for the season the warm air radiator "R" can be rid of the small accumulation of soot through the clean-outs "a" and from the door on back of pipe "F." The smoke pipe can easily be detached and cleaned. For cleaning the tubes of the boiler we recommend the Vertical Boiler Tube Cleaner as the best for this purpose. It can be used through the feed door without dumping the fire. All the flues can be cleaned in a few minutes.

Full directions for setting this Heater will be found on our pamphlet Capacities and Directions.

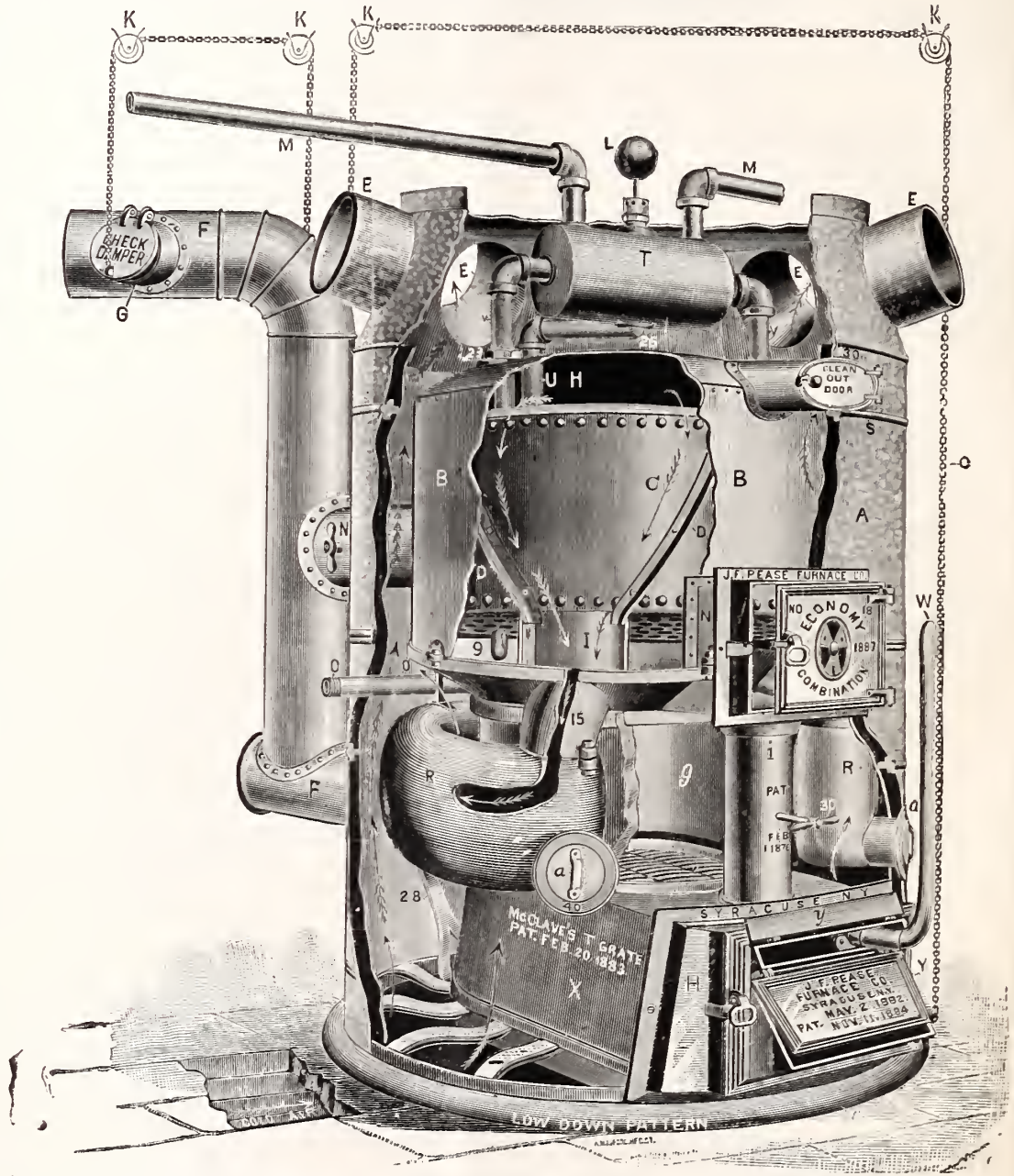
Cut on page 12 illustrates this heater set up in cellar complete.

The rated Capacities and Boiler Surface of this Heater will be found on pages 29–30.
Weights and Dimensions on page 28.

THE ECONOMY

Low-Down Combination Steam and Warm Air Heater,

With Casing and Internal Parts Broken Away to Show Construction



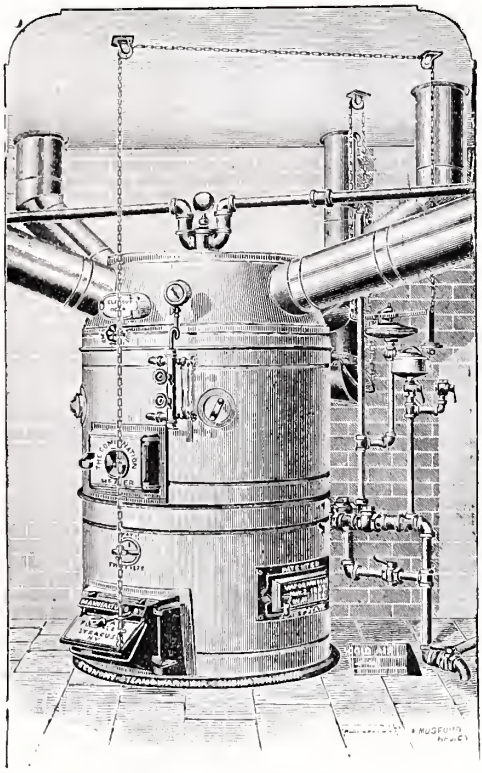
PORTABLE, CASED IN GALVANIZED IRON. FOR HARD COAL.

FIVE SIZES, NOS. 10, 14, 16, 18 and 20.

THE ECONOMY

Ventilating * Heaters.

HOT WATER OR STEAM WITH WARM AIR.



HOT WATER OR STEAM WITH WARM AIR.

ARE UNEXCELLED FOR

HEATING AND VENTILATING

Residences, Churches, Schools, Etc.

O. S. KENDALL & CO.,

Sole Agents in Worcester,

466 MAIN ST., WORCESTER, MASS.

THE ECONOMY

Combination Steam and Warm Air Heater.

LOW-DOWN PATTERN.

CONSTRUCTION.

The mechanical principle of this Heater is about the same as that of the REGULAR PATTERN COMBINATION HEATER. It differs somewhat in general construction to admit its erection in low cellars. The Combustion Chamber and Boiler inside are larger in diameter and not quite as high as the corresponding parts of the Regular Pattern. The segmental warm air radiator "R," which surrounds the fire pot immediately under the cast iron flange, is made of iron (cast in one piece), and is securely fastened by cup-joints to the elbow "15." The Heater is provided with the same Patent Dust Pipe Damper, and Vapor Pan, (not shown in cut,) that are used with the ECONOMY WARM AIR FURNACES. The Heater is also furnished with Steam and Water gauges, Safety Valve, Try Cocks, Diaphragm Regulator, Casing, Shaker, etc. All sises of this Heater are fitted with either A. C. Grate or McClave T Grate excepting size No. 20 which is made with T Grate only.

COMBUSTION.

The product of combustion ascends through the flues and around the sides of the boiler to the top of the Combustion Chamber and thence downward as indicated by the course of the arrows, influenced by the shields "D D" into the radiator "R" through the connection "I" and the elbows "15," and then finds its exit through the smoke flue by the indirect draft pipe "F." When building the fire the direct draft pipe "N" is used by turning the damper in the pipe which permits a direct exit for the smoke and gases to the chimney. When the fire is well started this draft is closed. The circuitous course followed by the product of combustion upward and downward, retards its exit until the greatest amount of heat obtainable is yielded and hence the fuel is used to the greatest advantage.

The method of producing the indirect warm air heat is the same as described for the Regular Pattern Heater on page 9.

CAPACITY.

The steam power of this apparatus is greater than that of the Regular Pattern Combination Heater, while the power for producing warm air is about the same. While they are especially adapted to low cellars that would not admit the Regular Pattern, we place many of them in high cellars of buildings which demand a large amount of steam heat. The Rated Capacities for heating space will be found on pages 29–30 of this book. Weights and Dimensions on page 28.

THE SPECIAL COMBINATION HEATER.

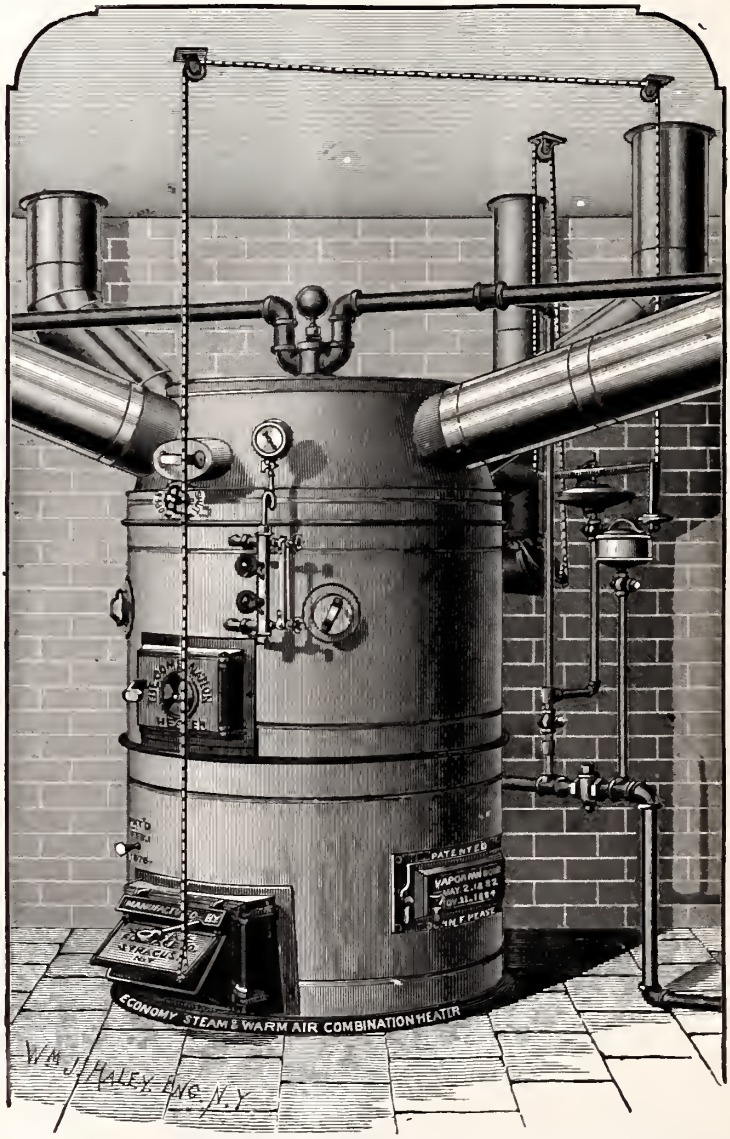
We also make these Heaters with special high boilers when an unusual large steam radiation is required.

THE IMPROVED ECONOMY

REGULAR PATTERN

COMBINATION STEAM AND WARM AIR HEATER.

Substantial in Construction. Thorough in all Respects. The same Fire which Produces the Warm Air generates the Steam without extra fuel.



The Systems of adjustment used in connection with our Combination INSURES CORRECT VENTILATION and guarantees PERFECT SANITARY HEATING.

AS THE HEATER APPEARS SET UP IN THE CELLAR READY FOR USE.

A FEW TESTIMONIALS

TO THE MERITS OF THE

ECONOMY COMBINATION HEATER.

We submit a few letters taken from our "Testimonial Pamphlet," which we offer as substantial evidence to prove the adaptability of these Heaters.

CHURCH.

The Rectory, St. John's Church, Richfield Springs, May 4, '88.

J. F. Pease Furnace Co.

Dear Sirs—Your Combination Warm Air and Steam Furnace which you put in our church is perfectly satisfactory in every respect, and does the work which you guarantee it to accomplish. We have never been so comfortable as during the past winter, which was an unusually severe one, and the steam combined with the hot air produces a heat which is very pleasant and pure, being free from that dryness which is characteristic of most furnaces. When properly managed there is no doubt that your Combination is the most economical and in every respect the best in the market, and, I should judge, is specially suited to churches and public buildings.

Very respectfully yours,
ROBERT GRANGER, Rector.

RESIDENCE.

New Bedford, Mass., May 1, 1886.

J. F. Pease Furnace Co., Syracuse, N. Y.

Gentlemen—I have carefully noticed during the winter the Combination Warm Air and Steam Furnace which you placed in my house last autumn. It has worked admirably well and has given me great satisfaction. Mr. Demarest, who had charge of placing the furnace, location of the pipes and other mechanical arrangements, has done the work with fidelity and skill. I am satisfied by the experience of the past winter that my house, which in some respects is a difficult one to warm, can easily be made comfortable in the coldest weather. The combination of warm air and steam is correct in principle, and your method of application to the construction of this furnace is, in my judgment, a success.

Yours truly, WM. W. CRAPO.

STORE.

Poughkeepsie, N. Y., May 7, 1886.

Messrs. Earl B. Chace & Co., 206 Water street, New York.

Gents—The Economy Warm Air and Steam Combination Heater (largest size,) you put in for us last September gives entire satisfaction. With a northern exposure of 100 feet, and eastern of 35 feet, we experienced no difficulty in the coldest weather in warming the 105,000 cubic feet of our store room. We believe that we have saved about 25 per cent. in coal, not to mention the saving of labor and the improvement in the atmosphere of our store. We are yours respectfully,

DONALD, CONVERSE & MAYNARD.

BANK.

Batavia, N. Y., April 15, 1886.

Mr. R. B. Pease.

Dear Sir—In reply to your letter of inquiry, I beg leave to say that I find, after two winters' trial, that the Combination Steam and Hot Air Heater, made by the J. F. Pease Furnace Co., of Syracuse, N. Y , which you placed in our bank building in 1884, has fully met my expectations. I believe it to be the true principle for heating and ventilating our buildings. You are at liberty to refer any one to me. Respectfully yours,

D. W. TOMLINSON,
President Bank of Batavia.

EDUCATIONAL BUILDINGS.

(Hamilton College), Clinton, N. Y., April 29, 1885.

B. S. Stone & Co., Mexico, N. Y.

The several Economy Heaters (both Hot Air and Combinations of Hot Air and Steam) that you have placed in the different College buildings have, so far as I have observed them, given excellent satisfaction, doing their work easily and with economy of fuel.

HENRY DARLING, President Hamilton College.

Fulton, N. Y., May 4, 1887.

J. F. Pease Furnace Co.

Gentlemen—I take pleasure in certifying to the workings of your Steam and Hot Air Heaters in our school building. I think you have hit the finest arrangement for heating and ventilating school buildings. With steam alone it is difficult to ventilate; but with the volume of warm air thrown into the rooms by your Combination Heater, it helps the heating, makes a pleasant atmosphere in the rooms, and aids any proper system of ventilation. Ours works in a perfectly satisfactory manner in regard to economy of fuel, ease and simplicity of management, strength of heat in windward rooms, and in ventilation. The temperature can be easily held to 70 degrees in the severest weather, with a reserve power. Having given the subject some attention, I feel warranted in saying I believe you have by far the most desirable arrangement for heating and ventilating school buildings.

Respectfully yours,
B. G. CLAPP,
Prin. Fulton Union School and Academy.

Norfolk, Conn., Feb. 19, 1885.

J. F. Pease Furnace Co.

Gentlemen—I am happy to state that the two Combined Steam and Warm Air Economy Heaters which your New York Agents, Earl B. Chace & Co., furnished and put in my dwelling and school house have worked finely from the first. They please me particularly in being easily managed, in their entire consumption of fuel so that ashes need no sifting, in cleanliness, in economy of fuel, and the non-leakage of gas, and in the absolute control of the heat by weights on diaphragm bar. The combination of steam with warm air enables me to heat my house of 19 rooms (many of which are remote from the furnace) with certainty and thoroughness. The house is in a very exposed situation, receiving the bitterest northwest winds without any protection, at an elevation of 1,300 feet. I feel the test a crucial one. There is neither hissing, bubbling or hammering in the pipes, and they work as still as any cylinder stove and give perfect circulation.

Very respectfully yours,
J. W. BEACH,
Prin. of Robbins School, Norfolk, Conn.

Mayville, N. Y., April 25, 1888.

The J. F. Pease Furnace Company of Syracuse, N. Y., having placed two No. 14 Combination Heaters in our enlarged school building, situate upon an elevation and necessarily exposed position, must say, after a careful test of their merits, they meet our approval as an efficient heater and display much practical mechanical arrangement in their general construction.

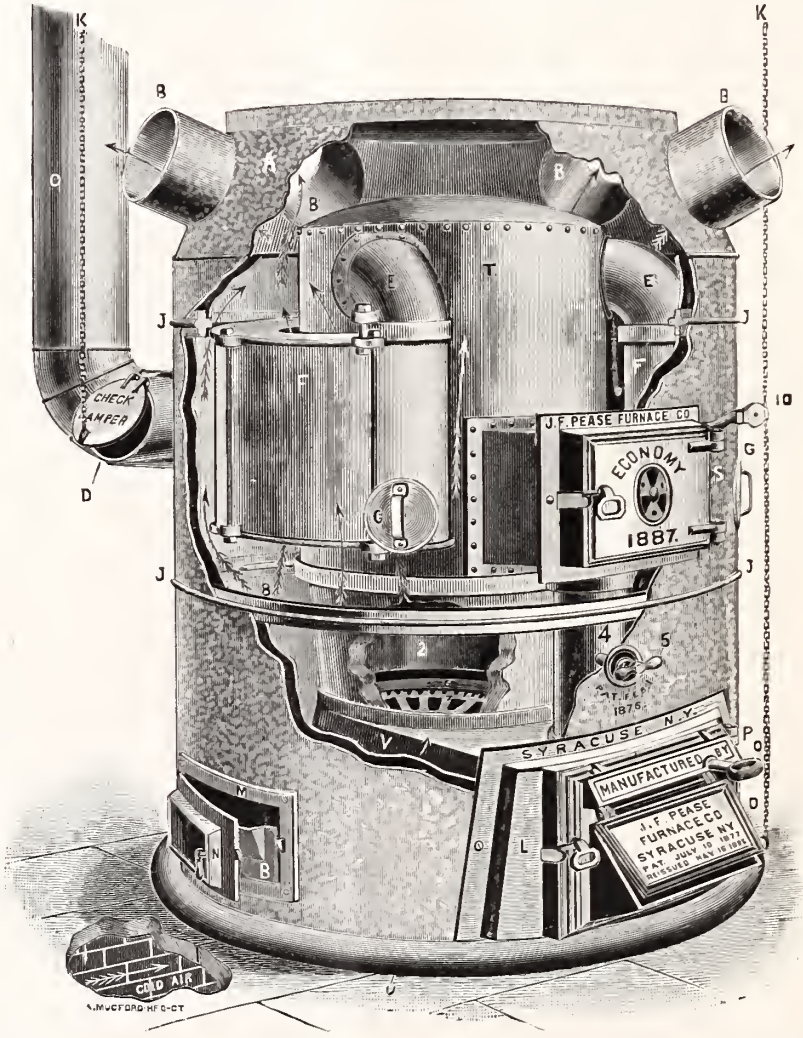
Done by direction of the Board of Education, Mayville, Chautauqua Co., N. Y.

W. B. GLEASON, Clerk.

ECONOMY WARM AIR FURNACE

REGULAR PATTERN.

With Casing and Fire Pot Broken Away to Show Internal Construction and Position of Grate.



PORTABLE, CASED IN GALVANIZED IRON. FOR HARD COAL.

SEVEN SIZES, NOS. 4, 8, 10, 14, 16, 18 and 20.

ECONOMY WARM AIR FURNACE

REGULAR PATTERN.

GENERAL CONSTRUCTION.

This FURNACE is surrounded by a Galvanized Iron Casing, held in position by the cast casing rings "*JJ*" and provided with an inside lining with an air space between to more effectually retain the heat and prevent waste by external radiation. "*V*" is the ash pit, upon which rests the cast iron fire pot "2," a portion of which is broken away in the cut to show the location of the Anti-Clinker Grate which is generally used with this Furnace, although the McClave Patent T Grate can be substituted when desired. (No. 20 is fitted with T Grate only.) The Chamber "*T*" is mounted on the fire pot and is surrounded by a crescent shaped Radiator "*FF*" which is connected to the Chamber by cup joints on the ducts "*EE*" through which the product of combustion has free passage into the enlarged ends of the Radiator. The rear of the Radiator communicates with the chimney by the smoke flue "*O*" on which is located the Check Damper "*D*," opened and closed by a small chain "*K*" running to any part of the building from which it may be desirable to control the Furnace. The damper "*O*" is likewise controlled from above by the chain "*K*." "*N*" is the vapor-pan door through which the vapor-pan "*B*" can be readily supplied with water, and should always be kept filled in order that the evaporation caused by the warm air circulating around it will keep the air ascending through the registers moist and healthful. "*BBBB*" are the galvanized collars connecting with the tin pipes leading to the registers. The number of these pipes varies according to the size of the Furnace and number of rooms to be warmed. On the feed door "*S*" the little circular damper permits sufficient air to enter the combustion chamber to burn the gas, and should always be kept open except when starting a fire. The handle "*Q*" with which to shake the Anti-Clinker Grate without opening the door, may remain in position except when the Grate is to be dumped, when it can be easily removed.

COMBUSTION

After ascending into and filling the Chamber "*T*" which also constitutes an efficient radiator, the heat and gases pass through the ducts "*EE*" and descend into the Radiator "*FF*" where, after yielding the greatest portion of heat, finally escape through the exit flue "*O*." Thus the product of combustion is utilized to the utmost extent possible with a Warm Air Furnace, and consequently obtaining from the consumption of fuel, the greatest result in radiated heat. Care is exercised in the construction of this Furnace to make it absolutely gas tight, and to prevent the escape of any of the impurities and odors of the combustion into the warm air chamber. The reputation that our apparatus has attained for perfection in this respect obviates the necessity of our dwelling on the subject.

CLEANLINESS.

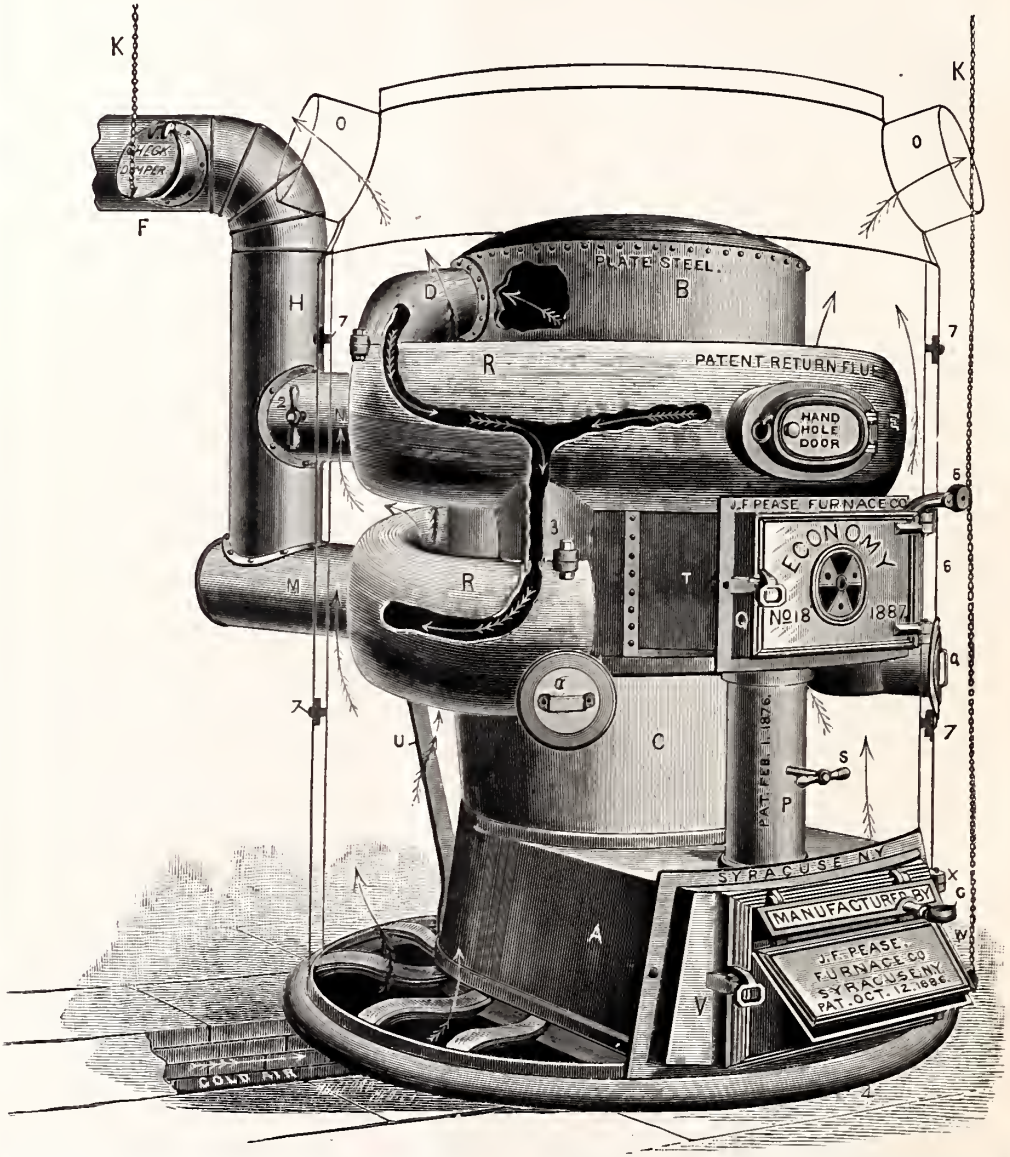
A very effective and convenient means of preventing the escape of dust through the ash pit door while shaking the Grate is obtained by our Patent Dust Pipe "4" extending from the top of the ash pit and communicating directly with the combustion chamber through the feed chute. This dust pipe is regulated by the damper "5," which is kept closed except when shaking. During that operation it is opened and the dust is drawn up through this pipe into the combustion chamber, by the draft By removing the two covers "*GG*" from the flues extending from the ends of the Radiator "*FF*" to the outside of the casing, the Radiator can easily be cleaned of the accumulated soot, etc. Rated capacities of this Heater will be found on page 29. Weights and Dimensions on page 28.

Full directions for setting up this Furnace and all our other Heaters will be found in our pamphlet entitled "Capacities and Directions," which will be sent to any address on application.

THE ECONOMY

Double Radiator Warm Air Furnace.

SHOWING CASING OUTLINED.



PORTABLE, CASED IN GALVANIZED IRON. CAN BE SET IN BRICK WHEN DESIRED.

FOR HARD COAL. SIX SIZES, NOS. 8, 10, 14, 16, 18 and 20.

THE ECONOMY

DOUBLE RADIATOR FURNACE,

WITH CAST IRON RADIATORS.

CONSTRUCTION.

The general characteristics of this Heater are in the main similar to those of the Regular Pattern ECONOMY FURNACE, and it possesses the same advantageous features of economy, cleanliness and durability.

The fire pot "*C*" resting on the ash pit "*A*" is surmounted by the combustion chamber "*B*." The Combustion Chamber is provided with a heavy wrought plate steel dome constructed to stand any degree of heat necessary. This chamber is surrounded by two cast iron Warm Air Radiators "*RR*," each cast in one piece and fitting to each other by cup joints at "3" and "7," as shown in cut. The radiators are segmental in form, terminating at opposite sides of the combustion chamber, thus forming the only perfect return flue Furnace ever yet made. The upper radiator is attached at its ends to the combustion chamber "*B*" by the ducts "*DD*," and the lower one is connected at its ends to the upper one in a reversed manner. Both radiators are connected to the smoke pipe "*H*" by the indirect draft pipe "*M*" and the direct draft pipe "*N*." The casing, warm air ducts, check and draft dampers, shaker, dust pipe and water pan are the same in use and construction as those described in connection with our Regular Pattern PORTABLE ECONOMY WARM AIR FURNACE.

All sizes of this Heater are fitted with either Anti-Clinker or T Grates, excepting No. 20 which is provided with T Grate only.

This construction admits of a free circulation of the air (coming in from the cold air duct) between the radiators and at the sides adjacent to the combustion chamber. On the interior of the radiators a course for the product of combustion is formed which is not only circuitous, but also partly downward, thereby retarding its escape until nearly all the heat is radiated. When open, the damper "2" on the pipe "*N*" allows the product of combustion a free and direct access to the smoke flue when starting a new fire, or when shut forces it around through both radiators after the coal is well ignited and the gases are thrown off.

The upper radiator can easily be cleaned through the hand hole door "*E*" and the lower radiator through the radiator cleanouts "*aa*" and a door in the rear of the draft pipe "*M*" (not shown in cut). This cleaning should be done in the spring as soon as the fire is out for the season, or it may be quickly done at any time.

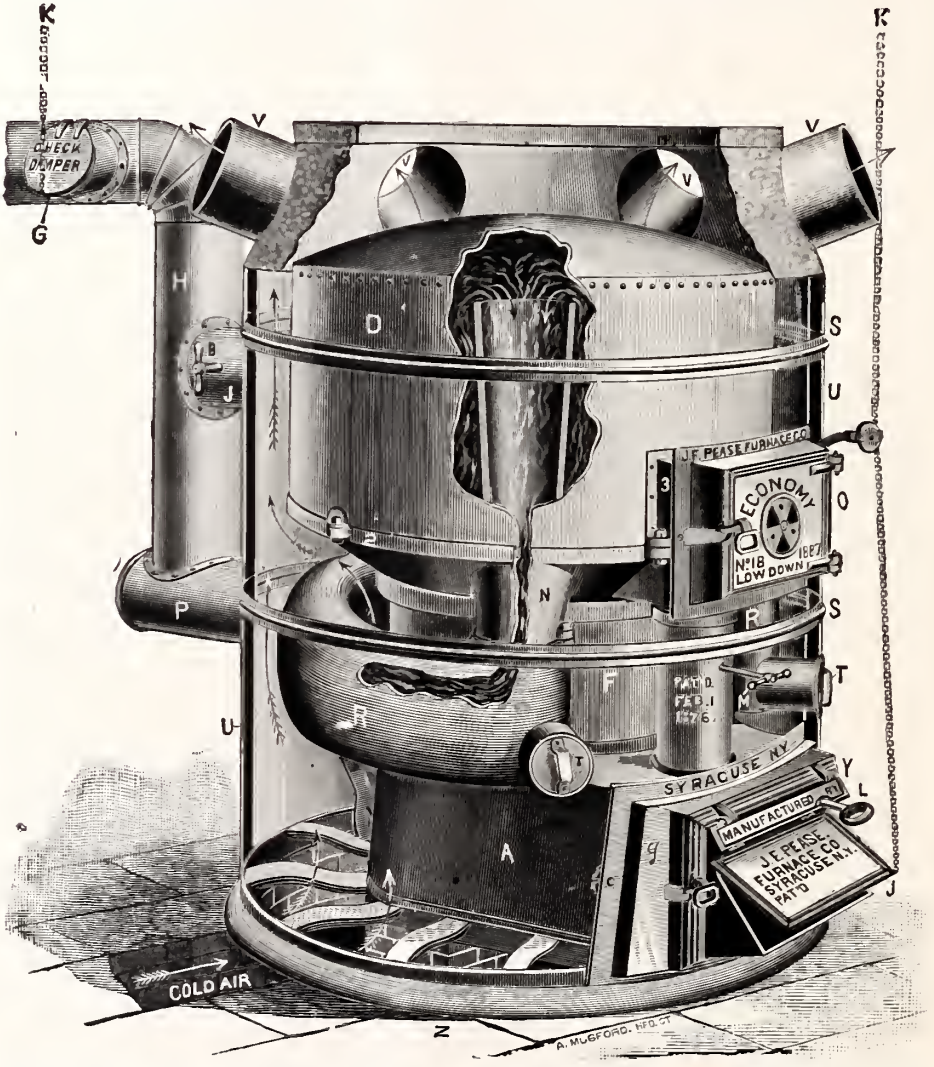
Rated Capacities, Weights and Dimensions of this Heater will be found on pages 28–29.

THE ECONOMY

Low-Down · Warm · Air · Furnace,

WITH CAST RADIATOR.

With Casing Partly Broken Away to Show Internal Construction.



PORTABLE, CASED IN GALVANIZED IRON. CAN BE SET IN BRICK WHEN DESIRED.

FOR HARD OR SOFT COAL.

SIX SIZES, NOS. 8, 10, 14, 16, 18 and 20.

THE ECONOMY

Low Down Warm Air Furnace

WITH ONE CAST IRON RADIATOR.

CONSTRUCTION.

This Furnace possesses the same general features that have made the ECONOMY FURNACE so popular, the construction being somewhat altered to adapt it to low cellars and to burning soft coal or coke when desired. It is double cased in the same manner and is provided with the same bottom, ash pit, fire pot, vapor pan, doors, shaker and clean-outs. "*D*" represents the combustion chamber (with a wrought steel dome of extra large size) resting on the cup joint cast iron extension flange, which in turn rests on the cup joint on top of fire pot "*F*," and to make it doubly secure against leakage of gas, the combustion chamber is bolted securely to the extension flange. The cast radiator "*R*" surrounding fire pot "*F*" is connected with the dome "*D*" by the cast flue "*N*," which is extended to the top of the combustion chamber by an interior duct which is rivited to it (the chamber forming one side of the flue.) The smoke pipe "*H*" is provided with check damper "*G*" (on horizontal part), regulated by chains running over pulleys to any room up stairs. The draft damper "*y*" is regulated in same manner. "*J*" is direct smoke pipe regulated by damper "*B*." "*P*" is indirect smoke pipe connecting with radiator "*R*." "*M*" represents our Patent Dust Pipe connecting ash pit "*A*" with the combustion chamber. The T handle is to open the damper in this flue when shaking the grate to carry the dust up into the combustion chamber. A vapor pan and door (not shown in cut) are used and attached in the same manner as with the REGULAR ECONOMY FURNACE. "*VVVV*" are the galvanized warm air collars connecting to the pipes through which the warmed air is distributed to the registers. The number of pipes and their sizes vary according to the size of Furnace and number of rooms to be heated.

METHOD OF CLEANING.

In the spring after through using the Furnace for the season, the caps "*TT*" can easily be removed and from these holes and the clean-out door on back of smoke pipe "*P*," the radiator can be rid of the accumulation of soot and the Heater is ready for another year's work.

COLD AIR SUPPLY.

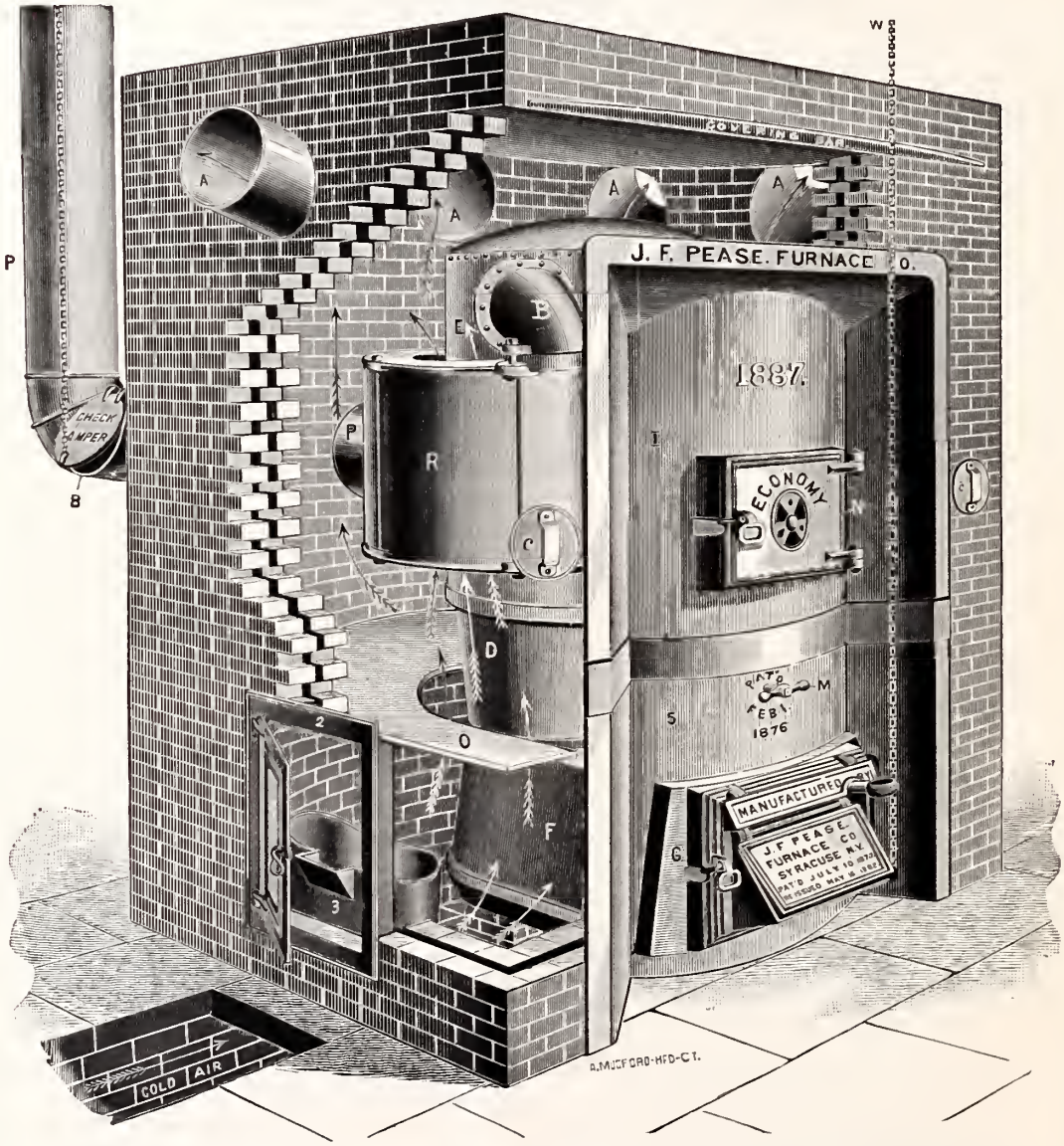
If the supply of cold air is taken from outside, we recommend the construction of a duct sunk in the cellar bottom with a pit under the Furnace, (shown in the cut) as much better distribution of the air supply is obtained. But where this is impracticable, the supply may be taken through a cold air box entering the casing just above the bottom "*Z*" on side or back, as shown in cut of our TROPIC FURNACE on page 24.

THE ECONOMY

BRICK · SET · WARM · AIR · FURNACE,

REGULAR PATTERN.

With Brick Work Broken Away to Show Internal Construction.



SET WITH DOUBLE BRICK WALLS AND AIR SPACE BETWEEN. FOR HARD COAL.

FIVE SIZES, NOS. 10, 14, 16, 18 and 20.

THE ECONOMY

Brick Set Warm Air Furnace,

REGULAR PATTERN.

CONSTRUCTION.

This Furnace possesses the same interior arrangement as our Regular Pattern Portable Economy Furnace, described on page 15. It is provided with a plainly finished heavy cast iron front, cast covering bars, man hole door, trench plates, and vapor pan.

The brick work should be built of two thicknesses, with an air space between as shown in cut, which will prevent the radiation of heat in the cellar.

While the cut represents the best manner of setting the Furnace, the cold air supply may be taken in the ordinary manner through a cold air box built through the brick work on top of the cellar bottom and without using the pit.

Full directions for setting, together with a sectional view of this Heater, will be found in our pamphlet, "Capacities and Directions."

Rated Capacities, Weights and Dimensions will be found on pages 28–29.

OTHER BRICK SET PATTERNS OF THE ECONOMY HEATERS.

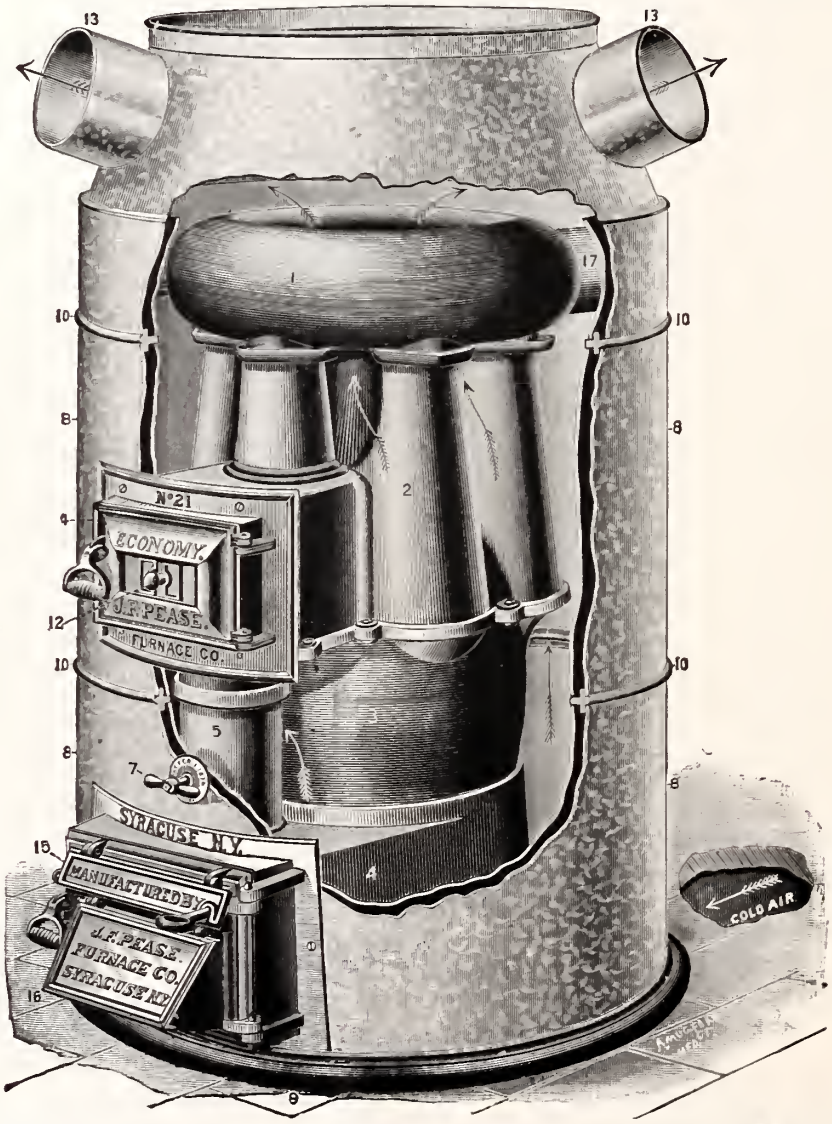
All of the Economy Heaters can be set in Brick, excepting Nos. 4 and 8 of the Regular, Low-Down and Double Radiator patterns, and Nos. 19, 21 and 23 of the Cast Iron Pattern.

THE NEW ECONOMY

CAST IRON

WARM AIR FURNACE

THE BEST CAST IRON FURNACE NOW ON THE MARKET.



POSSESSES LARGE AND EFFECTIVE RADIATING SURFACES.

Portable, Cased in Galvanized Iron. For Hard or Soft Coal.

FOUR SIZES, NOS. 19, 21, 23 and 25.

THE NEW ECONOMY

CAST IRON

WARM · AIR · FURNACE.

We have recently placed this Heater on the market to meet a demand for a first-class Furnace with cast iron radiating surfaces. After making thorough tests it has been demonstrated to be superior in every particular. We guarantee it to be unexcelled or unequalled by any cast iron Furnace now in the market. This Heater is thoroughly made in every particular. The castings are unusually heavy and made to stand any degree of heat to which they may be subjected.

CONSTRUCTION.

The Bottom "9," Ash Pit "4," Ash Pit and Draft Doors, "15 and 16," and Patent Dust Damper "5" are the same as described for other patterns of the ECONOMY FURNACE. The Fire Pot "3" rests on the top of the Ash Pit "4" in a cup-joint and is cast with a corrugated flange on top. The Combustion Chamber "2" is a cone shaped casting surrounded by six columns which open out of the lower and larger half of the chamber, thus forming an ample space for combustion. This Chamber rests on the flanged top of the Fire-pot in a cup-joint and is securely bolted and cemented to the pot. On top of this Chamber is placed the cast circular Radiator "1," which is fastened to the Chamber in a like manner. as described above. This Radiator can be set onto the Combustion Chamber in six different positions, hence the smoke flue extension "17" can be connected to the smoke flue from any side of the Heater which may be most convenient.

"13" "13" are the collars to which the warm air pipes are attached. These pipes vary according to number of rooms to be warmed "12" shows the Air Hole Door on the Feed Door "14." This little door should always be left open except when starting a fire, in order that the gas may be consumed.

The Furnace is cased with the best quality of galvanized iron, and has an inside tin lining to more effectually prevent radiation of heat in the cellar. It has a commodious Air Chamber and large radiating surfaces.

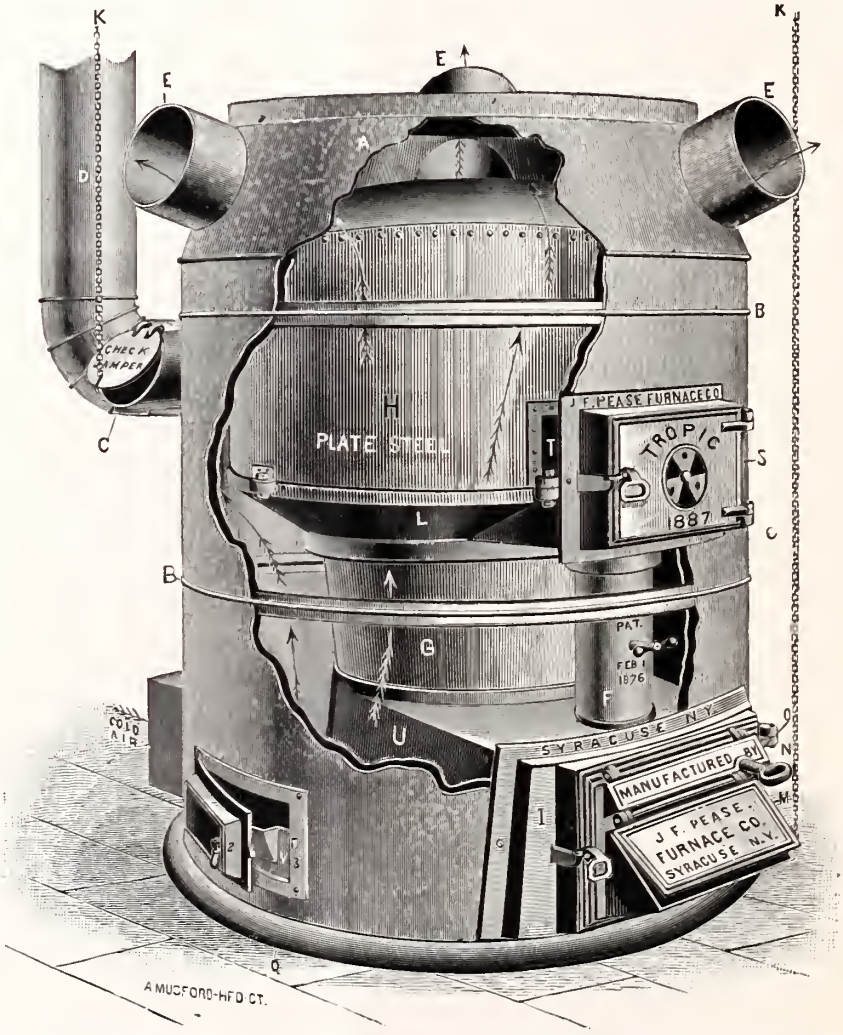
The Anti-Clinker Flat Grate or the McClave Patent T Grate can be used as desired.

Rated Capacities, Weights and Dimensions, will be found on pages 28–29.

THE TROPIC

WARM AIR FURNACE

WITH CASING BROKEN AWAY TO SHOW INTERNAL CONSTRUCTION.



Portable, Cased in Galvanized Iron. Can be Set in Brick when Desired.

FOR HARD OR SOFT COAL OR WOOD.

SEVEN SIZES, NOS. 4, 8, 10, 14, 16, 18 and 20.

THE IMPROVED TROPIC

WARM AIR FURNACE.

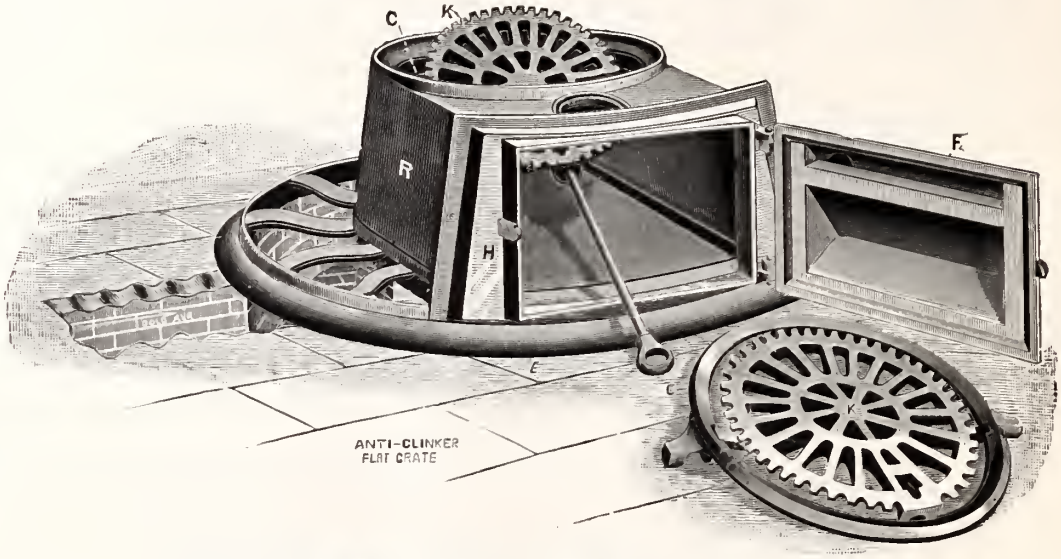
This Furnace we manufacture to supply a demand for a good low priced Heater, and is adapted to burning either soft or hard coal. It also gives excellent satisfaction as a coke burning Furnace. The Heater possesses many points of merit, and while it has not as much heating capacity as any of the ECONOMY FURNACES, it is constructed with reference to simplicity and durability. It has given the best satisfaction wherever it has been used, and is deservedly popular in different soft coal regions of the United States especially in the great West. The interior construction of the Furnace is such that the product of combustion is uniformly distributed inside of the combustion chamber (which is somewhat larger than that of the Regular Pattern ECONOMY FURNACE), and consequently every portion of radiating surface of the Furnace is utilized in the production of heat. The construction precludes the possibility of clogging with dust and ashes. It is very easily cleaned of the natural accumulation of soot. In the engraving on the opposite page we illustrate the manner of taking cold air supply to Furnace where the cold air pit and duct (in the cellar bottom) are not used.

CONSTRUCTION.

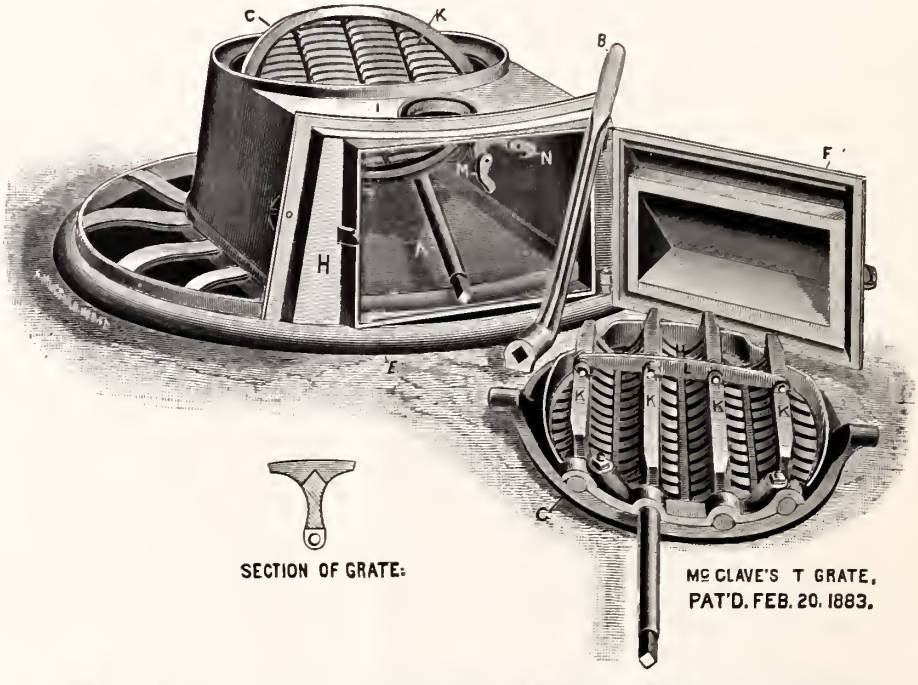
The combustion chamber "*H*" is constructed with a wrought plate steel dome of extra large size. It is absolutely gas and dust tight and is securely attached, with a cup-joint cemented and bolted, to an iron flange or hopper "*L*" resting on the cup-joint of the fire pot "*G*," which in turn rests on the cup joint of ash pit "*U*." The Furnace can be used with either style of our grates as desired. A very effective means of preventing the escape of dust and ashes, through the ash pit door while shaking the grate, is obtained by our Patent Dust Pipe "*F*," through which by turning the damper the dust is drawn up into the combustion chamber by the draft. This Furnace is also provided with our damper and check draft regulator by means of which the supply of heat is controlled from above by chains running over pulleys. "*V*" is the vapor pan, "*EEE*" are the galvanized warm air collars connecting with the tin pipes leading to registers, varying in number according to the number of rooms to be warmed. "*N*" is the handle with which to shake the Anti-Clinker Grate without opening the door. The casing, which is held in position by the cast rings "*BB*," is made of the best galvanized iron, with an inside lining which prevents the external radiation of heat in the cellar. The little circular damper on the feed door "*S*" allows sufficient air to enter the combustion chamber to burn the gas and should always be kept open (except just after putting on coal.)

Rated Capacities, Weights and Dimensions, will be found on pages 28–29.

IMPROVED GRATES.



THE ECONOMY "ANTI-CLINKER" FLAT GRATE.



THE McCLAVE PATENT ROCKING AND DUMPING "T GRATE."

Our Heater Grates.

THE ECONOMY "ANTI-CLINKER" FLAT GRATE.

The engraving on the opposite page illustrates the Grate "*K*" resting on the frame "*C*," which in turn rests on two bearings at each side of the ash pit "*R*." The Grate is shown partly dumped, in which position the surface may be easily cleaned of clinkers. It may be completely dumped by removing the shaker. The Grate and the frame in which the Grate rests are also shown separately. It is very simple, easily managed (shakes from side to side) and is very effective. In case it should be burned out, (by carelessly allowing the ashes to accumulate close under it in the ash pit,) it may be replaced at a small expense. This Anti-Clinker Grate has always given best satisfaction, and is constructed with reference to durability, and with proper usage will last as long as the Heater. All kinds and sizes of our Heaters and Furnaces excepting No. 20 of all patterns can be supplied with this Grate.

THE M'CLAVE PATENT "T GRATE."

The engraving on the opposite page illustrates our Rocking and Dumping T Grate "*K*," resting on the ash pit. "*A*" is the shank extension of one of the sections of the Grate on which the handle "*B*," fits through the small shaker door on top of ash pit door "*F*" when the ash pit door is closed. The Grate is shaken without opening the ash pit door, and the shaker is so constructed that it cannot be disconnected from the extension shank "*A*," without leaving the surfaces of all the Grate bars level. The little dogs "*M*" and "*N*" fit together around the extension shank "*A*," to hold the Grate in position. We also show this Grate reversed, illustrating the manner of connecting the four sections of the Grate "*KKKK*," together by the bar "*L*," causing them all to work uniformly when the shaker is applied. These bars or sections, (as will be shown by the small sectional cut of an end of one of the bars,) are constructed on the principle of a railroad rail with cross sectional slits to admit a sufficient draft. The Grate is strong, durable, effective and easily managed, and unlike other grates of similar construction, is easily dumped and cleared of clinkers and ashes. See cut of Low Down Combination Heater on page 8, illustrating it in position. All kinds and sizes of our Heaters and Furnaces (excepting No. 4 of all patterns), can be furnished with this Grate.

WEIGHTS AND DIMENSIONS.

COMBINATION HEATERS.

	NO.	WEIGHT.	Diam. of Casing.	Height with Case.	Height without Case.	Diam. of Fire Pot.	Height of Fire Box.
Regular Pattern.	10	1700 lbs.	43 in.	74 in.	69 in.	20 in.	16 in.
	14	1950 "	48 "	79 "	75 "	22 "	17 "
	16	2150 "	53 "	82 "	78 "	25 "	17 "
	18	2575 "	53 "	82 "	78 "	27 "	17 "
	20	3700 "	64 "	88 "	84 "	32 "	20 "
Low-Down Pattern.	10	2150 "	43 "	70 "	68 "	20 "	16 "
	14	2350 "	48 "	72 "	70 "	22 "	17 "
	16	2600 "	53 "	80 "	76 "	25 "	17 "
	18	2800 "	53 "	80 "	78 "	27 "	17 "
	20	4000 "	64 "	86 "	82 "	32 "	20 "

WARM AIR FURNACES.

	NO.	WEIGHT.	Diam. of Casing.	Height with Case.	Height without Case.	Diam. of Fire Pot.	Height of Fire Box.
Regular Pattern Economy.	4	800 lbs	34 in.	62 in.	51 in.	16 in.	13 in.
	8	850 "	39 "	65 "	53 "	18 "	13 "
	10	1050 "	43 "	67½ "	58½ "	20 "	15 "
	14	1300 "	48 "	72 "	62 "	22 "	16 "
	16	1500 "	53 "	79 "	64 "	25 "	17 "
	18	1750 "	53 "	79 "	64 "	27 "	17 "
	20	2500 "	64 "	85 "	70 "	32 "	20 "
Double Radiator Economy.	8	1100 "	39 "	65 "	53 "	18 "	13 "
	10	1450 "	43 "	67½ "	58 "	20 "	15 "
	14	1600 "	48 "	72 "	62 "	22 "	16 "
	16	1900 "	53 "	79 "	64 "	25 "	17 "
	18	2200 "	53 "	79 "	64 "	27 "	17 "
	20	3400 "	64 "	85 "	70 "	32 "	20 "
Low-Down Economy.	8	1075 "	39 "	60 "	51½ "	18 "	13 "
	10	1300 "	43 "	66 "	55 "	20 "	15 "
	14	1650 "	48 "	70 "	58½ "	22 "	16 "
	16	1900 "	53 "	74 "	61 "	25 "	17 "
	18	2100 "	53 "	74 "	61 "	27 "	17 "
	20	3150 "	64 "	80 "	67 "	32 "	20 "
Brick Set Economy.	10	1150 "	——	——	60 "	20 "	15 "
	14	1550 "	——	——	62 "	22 "	16 "
	16	1800 "	——	——	64 "	25 "	17 "
	18	2100 "	——	——	64 "	27 "	17 "
	20	2750 "	——	——	70 "	32 "	20 "
Cast Iron Economy.	19	620 "	34 "	55 "	51 "	19 "	14 "
	21	800 "	39 "	57 "	53 "	21 "	15 "
	23	1000 "	43 "	60 "	56 "	23 "	15 "
	25	1200 "	48 "	62 "	58 "	25 "	15 "
Tropic.	4	800 "	34 "	65 "	56 "	16 "	13 "
	8	850 "	39 "	60 "	51½ "	18 "	13 "
	10	1025 "	43 "	66 "	55 "	20 "	15 "
	14	1325 "	48 "	70 "	58½ "	22 "	16 "
	16	1550 "	53 "	74 "	61 "	25 "	17 "
	18	1750 "	53 "	74 "	61 "	27 "	17 "
	20	2500 "	64 "	80 "	67 "	32 "	20 "

CAPACITIES.

THE HEATING CAPACITY

OF THE

Economy · Warm · Air · Furnaces

Is about as follows, varying according to Climate, Exposures, Construction of Buildings to be Warmed, etc.

No. 4 and No. 19	6,000 to 8,000	cubic feet of space.
No. 8 " " 21	8,000 to 10,000	" " " "
No. 10 " " 23	10,000 to 16,000	" " " "
No. 14 " " 25	20,000 to 30,000	" " " "
No. 16	30,000 to 40,000	" " " "
No. 18	40,000 to 50,000	" " " "
No. 20	50,000 to 75,000	" " " "

Heating Capacity of the Combination Heater.

When estimating for the Combination Steam and Warm Air Heater, add to the above for the extra Heating Capacity, about 25 per cent. We have instances where the steam benefit is fully 50 per cent., but it is safe to rely on the figures given.

It is well to be governed to some extent, when estimating, by what the rooms or buildings are used for. Chambers do not require as high a temperature as living rooms.

Estimates for size of Furnace required must vary with the construction of buildings to be warmed, number and size of windows and exposure, as well as temperature of locality.

THE BOILER SURFACE.

Regular Pattern Combination Heater,	No. 10	55	square feet.
" " " "	No. 14	70	" "
" " " "	No. 16	75	" "
" " " "	No. 18	95	" "
" " " "	No. 20	120	" "
Low-Down Pattern Combination Heater,	No. 10	90	" "
" " " "	No. 14	120	" "
" " " "	No. 16	120	" "
" " " "	No. 18	140	" "
" " " "	No. 20	170	" "

LOW-DOWN COMBINATION HEATER WITH SPECIAL HIGH BOILER.

Special High Boiler Combination Heater,	No. 10	120	square feet.
" " " " "	No. 14	160	" "
" " " " "	No. 16	160	" "
" " " " "	No. 18	185	" "
" " " " "	No. 20	250	" "

COMBINATION HEATERS.

THE AMOUNT OF STEAM RADIATION

Each Heater will carry, of course depends upon the chimney draft, the manner in which the steam and return piping is fitted and the amount of cellar piping. With good chimney draft, and with the cellar, steam and return pipes thoroughly wrapped, the following estimates may be relied on.

No. 10	Regular Pattern Combination Heater will carry					....175 to	200	square	feet	direct	steam	radiation.
No. 14	"	"	"	"	"	.. .275 to	300	"	"	"	"	"
No. 16	"	"	"	"	"	....300 to	350	"	"	"	"	"
No. 18	"	"	"	"	"	....350 to	400	"	"	"	"	"
No. 20	"	"	"	"	"	... 500 to	600	"	"	"	"	"
No. 10	Low Down Combination Heater				"	....225 to	275	"	"	"	"	"
No. 14	"	"	"	"	"	....375 to	425	"	"	"	"	"
No. 16	"	"	"	"	"	....425 to	500	"	"	"	"	"
No. 18	"	"	"	"	"	....500 to	600	"	"	"	"	"
No. 20	"	"	"	"	"	....700 to	800	"	"	"	"	"
No. 10	"	"	"	" with special high boiler		275 to	325	"	"	"	"	"
No. 14	"	"	"	"	"	475 to	550	"	"	"	"	"
No. 16	"	"	"	"	"	550 to	650	"	"	"	"	"
No. 18	"	"	"	"	"	650 to	800	"	"	"	"	"
No. 20	"	"	"	"	"	800 to	1000	"	"	"	"	"

RELATIVE CAPACITY FOR STEAM AND WARM AIR.

The Regular Pattern Combination Heater Produces Steam and Warm Air in about Equal Proportion.

The Low-Down Combination Heater Produces about Forty per cent. of Warm Air Heat to Sixty per cent. Steam.

RULE FOR DETERMINING RADIATING SURFACE.

The following rule may be of use when estimating for direct radiator surface required: Divide the number of cubic feet of space in any room by fifty, and this will give the radiator surface required at the rate of one foot surface, to fifty cubic feet of space. This is a very liberal adjustment, but may be used in exposed, north or west rooms. South and east rooms may be rated as high as seventy cubic feet, and centre houses in blocks, as high as eighty cubic feet; the adjustment to be governed by the construction, exposure and temperature required. Where "Warm Air" is used in same room or rooms with the steam, the steam radiating surface should be reduced in proportion.

Use great care when estimating for heating power required, examine the building carefully, and note every point of construction, material, number of windows and their size, exposure of the building, etc.

COLD AIR DUCTS

Connecting with underground Furnace pits should be same depth as the pit; should be laid up with a 4-inch brick wall, smooth on inside, cemented on bottom and made water and dust tight. They should run from the Furnace pit to underneath a west or north cellar window, if possible. There *should be a wooden box* (*matched and tight*) from the window directly down and connecting with the underground duct. In this upright wooden box there should be a damper ; or the ordinary slide can be used, if preferred, and the cold air supply regulated in the cellar. Do not make this upright box of iron or of any other metal, as it would be covered with frost in winter and be otherwise objectionable.

The top of the cold air duct should be covered with flag-stone or two inch pine plank and thoroughly covered with grout, level with the cellar bottom. It is desirable to have an inside cold air box connecting with the underground duct taking cold air supply from some of the first floor rooms in extremely cold weather at times. In such cases, dampers or slides must be placed in both the outside and inside connections, and when cold air is taken from the outside, the *inside connection must be closed off tight, and vice versa*. It does not matter which side of the Furnace pit the underground duct is taken from, but the outside cold air supply should be taken to the cold air duct or box from the west, north or northwest.

Cellar boxes to take cold air from the rooms should be made of galvanized iron or matched boards and dust tight to prevent any dust in the cellar getting into the cold air duct, where it would have free access to the warm air chamber. It should be borne in mind that when the Furnace is in operation there is always a current of air passing through the box which makes a suction into the box through every crack, however small, of any fine ashes or dust which may be flying about the cellar. A good knowledge of this important matter and a thorough application of the remedy will save all the complaint so often heard in regard to dust from warm air furnaces.

All wooden cold air boxes should be lined inside in a thorough manner with good strong paper. Tarred felt paper is the most pliable and best to use for this purpose.

SIZES OF COLD AIR DUCTS AND BOXES.

Cold air expands when heated, and it is a pretty good rule to make the outside cold air box or duct ¾ the capacity of all the registers. For our Furnaces and Heaters we advise the following sizes for Cold Air Boxes and Ducts :

No.	4	Furnace	240 square inches.
"	8	"	290 " "
"	10	"	340 " "
"	14	"	460 " "
"	16	"	450 " "
"	18	"	500 " "
"	20	"	600 " "

WARM AIR REGISTERS.

Sizes of Registers and Pipes Ordinarily Used, According to Size of Rooms to be Warmed.

First Floor Rooms,			12 inch	Pipes				with	12 x 15 or 12 x 17	Registers.	
"	"	"	10	"	"			"	10 x 14		"
"	"	"	9	"	"			"	9 x 12		"
Second	"	"	3 x 10½	Riser			with	8 x 12 or	8 x 14	Circle Top, Side Wall	Registers.
"	"	"	4 x 10½	"		"	9 x 12 or	10 x 14	"	"	"	"	"
"	"	"	6 x 12	"		"	11 x 16 or	12 x 18	"	"	"	"	"

Round pipes from the Furnace to Riser pipes leading to upper rooms are ordinarily used 7, 8, 9 and 10 inch diameter, according to size of room to be warmed.

DIRECTIONS TO PARTIES WISHING ESTIMATES MADE FOR HEATING.

TO MAKE AN INTELLIGENT ESTIMATE, IT IS IMPORTANT THAT WE HAVE THE FOLLOWING DETAILS :

First. A plan or pencil sketch (made to scale if possible) of the building to be warmed, giving height of ceilings together with size of rooms.

Second. State which rooms are to be warmed and temperature desired in each for zero weather. State whether they have proper base ventilation (which is important.)

Third. State at what point of compass the building fronts, and state whether exposed to the winds or sheltered.

Fourth. Of what material built and if warmly constructed or otherwise.

Fifth. Give the number and size of the windows in each room.

Sixth. Give height of cellar, location of chimney, and state whether the draft is good or otherwise, and if the building in which the Furnace is wanted is an old one.

Seventh. State if cellar extends under the whole or part of the building, and if only a part state just what part.

Eighth. Give any other information which may be deemed important. We will either refer your communication to our nearest agent, giving proper instructions, or if we have no agent near you, will make careful estimate ourselves and submit direct to you.

SELECTING A FURNACE.

In selecting a Furnace, it is always better to buy one large enough to warm the building without forcing and have a reserve to draw from. It is also better economy, as no more fuel is consumed, the radiating surface is larger, the heated air is better, and the Furnace will last longer.

SETTING THE FURNACE.

Great care should be taken in setting the Furnace, as mistakes at this point are often serious. Our agents throughout the country are competent to attend to this, and give advice as to sizes required, etc. We take a personal interest in all cases brought to our notice, and always cheerfully give specific directions regarding Heating and Ventilating when requested. Full printed directions for setting and using our Furnaces accompany each shipment, or will be sent on application.

OPINIONS.

We can offer no stronger evidence to support our claims than the verdicts of those who have given our Heaters satisfactory tests.

We submit that a certain few of our competitors who have endeavored to disparage the durability and efficiency of our Heaters, will find the following testimonials and subsequent re-endorsements a lot of rather hard nuts to crack.

COMBINATION HEATERS.

Office of EBERHARD FABER,
A. W. Faber's Lead Pencils,
545 Pearl street, New York, May 26, 1887.

Messrs. Earl B. Chace & Co., 206 Water street, City.

Gentlemen—It gives me pleasure to bear testimony to the merits of your Combination Heater. In my own experience I have found it to come up to all the requirements of heating my house at Port Richmond, Staten Island, comfortably in the severest of cold spells we have had during the past winter. I can conscientiously recommend your system of heating residences to all persons who wish to have warmth and pure air in their homes.

Yours respectfully, L. W. FABER.

Office of EBERHARD FABER,
A. W. Faber's Lead Pencils,
545 and 547 Pearl street, (near Broadway,) New York, May 10, 1890.

J. F. Pease Furnace Company, Syracuse, N. Y.

Gentlemen—Having had an experience of four years with your "Economy" Combination Steam and Warm Air Heater, I now take pleasure in testifying that it has given me great satisfaction.

My house is situated on the bank of a river and is in consequence exposed to the cold winds. Thanks to your furnace, I have never had any difficulty in properly heating it.

Yours very truly, L. W. FABER.

Hingham, Mass., Feb. 16, 1885.

J. F. Pease Furnace Co.

Dear Sirs—The Combination Steam and Hot Air Heater which your agent set up for me last November is doing good work. The construction of my house is such that hot air can not be taken to all the rooms. This has just "filled the bill." The coldest night this winter, when the thermometer stood 10 to 15 degrees below zero, we kept (counting back and front entries) 15 rooms comfortable. For the first season in fifteen my house has been comfortable on the coldest days, and this with carrying only one and one-half or two pounds of steam.

Very truly yours, H. E. SPALDING, M. D.

Hingham, Mass., May 9. 1890.

Dear Sirs—I have now used the Combination Steam and Warm Air Heater in my house six winters, and it has during these seasons given us the best possible results. In a house impossible to heat with a single furnace or by any of the ordinary methods, we have kept fifteen rooms warm, and with little difficulty, in the coldest weather—a chief feature and advantage over other heaters, whether steam or hot water, where direct radiation is used is the fact that fresh out-of-door air, suitably warmed, is thrown into the house, thus insuring good ventilation. As a health measure this, coupled with a proper degree of warmth, is necessary, but too often wanting in the methods of heating modern houses. I would not willingly part with it.

Yours very truly, H. E. SPALDING, M. D.

JOHNSON & SON,
Church and Concert Organs,
Westfield Mass., February 12, 1884.

J. F. Pease Furnace Co.

Gents—We are very much pleased with the manner in which your Combination Steam and Hot Air Heater, placed in our house last November by H. O. Sprague & Son, your agents, has done its work this season. It is a splendid heater, easily managed, and is rightly named "Economy."

JOHNSON & SON, Ch. Organ Builders.

JOHNSON & SON,
Church and Concert Organs,
Westfield, Mass., May 10, 1890.

J. F. Pease Furnace Co.

Gentlemen—In reply to yours of May 9th, enquiring about the Combination Heater which we purchased of you for our house, we can only say that we have not the time to cover details in the matter; we think the Heater has been *in use for seven winters* just passed; and it has been, and *is perfectly satisfactory in every particular;* and it is unquestionably all that you claim for it.

Yours truly, JOHNSON & SON.

P. S.—You can make any use of this and our former letter that you see fit. J. & SON.

{ CLEVELAND,
{ CHICAGO,
{ NEW YORK.

SHERWIN & WILLIAMS CO.,
Manufrs. Paints and Colors,
100 Canal St., Cleveland, O., June 2, 1886.

J. F. Pease Furnace Co., Syracuse, N. Y.

Gentlemen—It gives me pleasure to state that the No. 18 Economy Warm Air Furnace and Steam Heater combined which you placed in my residence, 1324 Euclid avenue, last fall, is giving good satisfaction. The quality of heat produced from the steam and warm air combined is pleasant and healthful, and superior I think to steam or warm air when used alone. The ease with which the Furnace is managed to get the desired heat wanted in all kinds of weather is a valuable feature of your combination. I believe it to be an excellent heating apparatus in all respects.

Yours truly, H. A. SHERWIN.

THE SHERWIN-WILLIAMS CO.,
Manufrs. Finest Paints and Colors,
100 Canal St., Cleveland, O., May 9, 1890.

Messrs. The J. F. Pease Furnace Co., Syracuse, N. Y.

Gentlemen—In reply to yours of the 8th, yes, you are at liberty to use my name in a testimonial regarding the merits of the Pease Combination Heater. While I do not remember what I said about it in 1886, I am sure I told the truth, and after this length of time I am pleased to say that it is so very satisfactory that I would not consider the use of any other under any circumstances.

Yours very truly, H. A. SHERWIN.

JOHN H. GRAHAM & CO.,
Hardware and Manufacturers' Agents,
113 Chambers Street, New York, May 12, 1887.

Messrs. Earl B. Chase & Co., 206 Water Street, N. Y.

Gentlemen—After having used your Steam and Warm Air Combination Heater in my house, 17 Vernon Avenue, Brooklyn, for the past two winters, I can thoroughly recommend it in all respects.

When the heater was put in, a year ago last fall, the house was in course of erection, and and although the house was quite open all winter, the doors and windows being simply closed by muslin, the furnace was sufficient to keep it at a fair temperature. During the past winter I have been occupying the house and have been able to heat it to my entire satisfaction, and without the slightest trouble. The house is exposed on all sides, but this seems to have made no difference, as I have never had to force the heater even on the coldest days. From October 25th to May 2d, the furnace consumed 11 tons of coal.

I take pleasure in recommending your system of heating to those contemplating heating with steam, believing it to be in many ways the best.

Yours truly, WM. A. GRAHAM.

JOHN H. GRAHAM & CO.,
Hardware and Manufacturers' Agents,
113 Chambers and 95 Reade Streets, New York, May 10, 1890.

J. F. Pease Furnace Co., Syracuse, N. Y.

Gentlemen—In reply to your letter of May 9th, requesting permission to reprint my testimonial of May 12, 1887, given to Chace & Co., for the Combination Heater, which they placed in my house in Brooklyn, you have my permission to reprint the same, as the furnace has always given me the best of satisfaction.

Yours truly, W. A. GRAHAM.

We also print a letter received from the Principal of the High School at Fulton, N. Y., regarding the Heating Plant referred to in his letter printed on page 13.

Fulton, N. Y., April 22, 1890.

Mr. E. K. West, Pres't.

Dear Sir—We still feel that your plant for heating and ventilating in our school building is a full success. There is no better heating, and the ventilation is good.

I feel that the equipments of our school building are a luxury.

We feel *no fear* of severe weather.

Respectfully yours, B. G. CLAPP.

WARM AIR FURNACES.

Syracuse, N. Y., May 11, 1886.

J. F. Pease Furnace Co.

Gentlemen—The seven Economy Furnaces you put into my building, "May Place," give excellent satisfaction. I also have one of your No. 10 Economys in my residence, which has always given satisfaction and has been in use eight years. To all appearances it is as good as ever.

Yours truly, WILLIAM O'CONNOR.

Syracuse, N. Y., Nov. 5, 1885.

To whom it may Concern:

Having at this date used for nine years the Economy Furnace, manufactured by the J. F. Pease Furnace Company of Syracuse, N. Y., I wish to renew my testimony to its efficacy as a heater and its durability. During these nine years I have found it to need no repairs to its wrought iron dome or radiator.

W. P. CODDINGTON, (of Syracuse University.)

Syracuse, N. Y., March 21, 1884.

J. F. Pease Furnace Co.

Dear Sirs—The "Economy" Furnace which you placed in my house has given perfect satisfaction. It has done all that could be reasonably expected of any furnace. It is economical, convenient and efficient. Respectfully,

C. N. SIMS, (Chancellor Syracuse University.)

Washington Insurance Co.
President's Office, Cincinnati, May 9, 1890.

Coleman Gas Works Mfg. Co.

Gentlemen—I take pleasure in testifying to the excellence of your Economy Furnaces, one of which I have had in my residence at Branch Hill for the past three years. I have never had the slightest trouble with it. It warms my house comfortably in the coldest weather. We have burned coke as fuel and find it also very satisfactory. I am well pleased with your regulating check damper, it being operated from the upper room, saving much trouble in going to the cellar to close the draft when it is too warm, and saving fuel also.

Respectfully yours, E. V. BROOKFIELD,
(Pres. Wash. Ins. Co.)

Washington, D. C., April 7, 1888.

J. F. Pease Furnace Co.

It affords me much pleasure to state in response to your inquiry of the 5th inst., that I have had one of your No. 10 Economy Furnaces in my residence since last fall and am more than pleased with the result. Heretofore I have endeavored to heat my house by means of latrobes, and whilst they consumed more fuel than the furnace, and were consequently more expensive, they failed to furnish sufficient heat to make the house at all comfortable in cold weather. Since the furnace has been in operation we have a comfortable and cozy house. My wife and myself are both delighted with it, and would not be without it for double or treble its cost. I regard its construction and working as near perfection as it is possible to get, and as a fuel saver it has no equal that I know of, besides, a little child can manage it, so little attention does it require. With best wishes for your prosperity, I remain, gentlemen,

Very respectfully J. H. C. HOLLINS, 631 G St., S. E.

W. J. HOLMES,
Investment Securities, Real Estate,
Fergus Falls, Minn., March 21, 1890.

J. F. Pease Furnace Co., Syracuse, New York.

Gentlemen—I have used one of your No. 14 "regular pattern" Furnaces three years and am perfectly satisfied with it. I heat about 25,000 cubic feet (11 Registers) with ten tons of coal in severe winters. This winter has been remarkably mild and I have not used quite 7 tons of coal. I can get any desired amount of heat and keep a uniform temperature night and day. A Furnace that will produce such results in Western Minnesota is sure to please purchasers *anywhere.*

Yours truly, W. J. HOLMES.

St. Paul, Minn., Feb. 19, 1890.

Messrs. Wolterstorff, Moritz & Co., 212 E. Seventh St., St. Paul, Minn.

Gentlemen—I take pleasure in certifying that the "Economy Furnace" put into my house last fall by you has given perfect satisfaction.

I have used 15 per cent less coal this season than in the last seven, in spite of the fact that my new house stands alone, is more exposed to winds, and is larger than my old one.

Yours very truly, C. J. A. MORRIS,
613 Goodrich Ave.

Knoxville, Tenn., Feb. 3, 1890.

J. F. Pease Furnace Co., Syracuse, N. Y.

Gents—Enclosed please find New York draft for to pay my bill for Furnace.

Permit me to say that I am highly pleased with your Furnace No. 10. Although our climate is not so rigorous as that of the Northern States yet we frequently have zero weather, and my house, consisting of 10 large rooms, has ceilings 14 ft. high below and 12 ft. high above, yet I have not found any trouble in heating it without heating the furnace to its full capacity. Respectfully, W. BORIGHT.

Office of HEINZ & HIRSCHL,
Lawyers, N. W. cor. Third and Main Sts.,
Davenport, Iowa, Feb. 3, 1890.

J. F. Pease Furnace Co., Syracuse, N. Y.

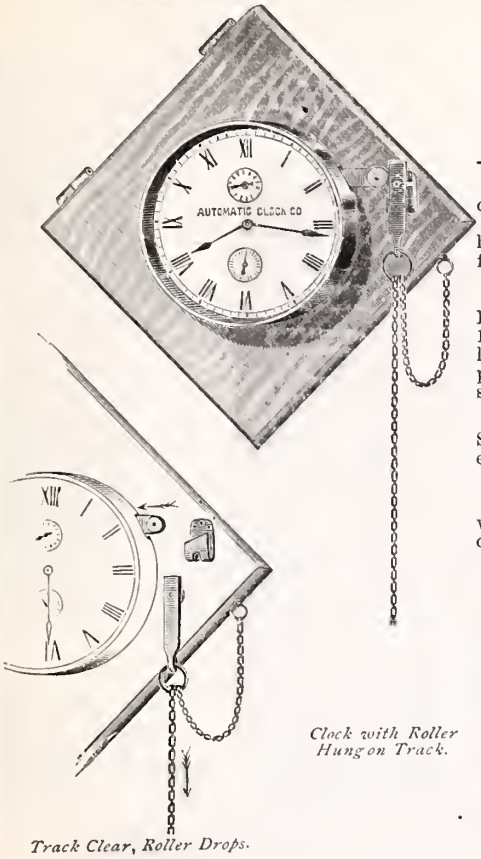
Though not due till March 1st, 1890, yet I enclose now draft in full payment of my furnace and take pleasure in expressing my entire satisfaction. Please acknowledge receipt.

Yours respectfully, A. J. HIRSCHL.

We have received from time to time many hundred letters of recommendation, of which we only print a representative few in this year's catalogue.

Under another cover we shall soon issue a pamphlet of opinions containing testimonials from every portion of the United States where heaters are used. The book will also contain a neatly arranged reference list. The pamphlet will be mailed on application to any address, postpaid.

THE AUTOMATIC CLOCK.



Clock with Roller Hung on Track.

Track Clear, Roller Drops.

It has no intricate parts to get out of order; requires no electricity, the motive power being a roller with chain attachment hung on a track slightly inclined (separate from the clock); a metal bar with wheel pivoted at the end, when drawn from the clock, rests against the track and forms an obstruction which detains the roller on the track until the *set* time, then the bar slides into the clock; the track being clear, the roller drops, the *work is done.* When the chain is connected, as shown in cut, placing the roller on the track checks the drafts; when the roller drops, all drafts are on.

It can be attached by any one in a short time, and will work equally well on steam, hot air or hot water heaters.

It can be applied to any of the automatic regulators or electric thermostats which require to be adjusted every night and morning. The Automatic Clock saves the disagreeable trip *early* and *late* by regulating such regulators, allowing them to regulate by day, while the clock regulates by night. With the roller on the track the fire *stays* checked, but when it drops, the regulator resumes its appointed work.

SAVES COAL COLDS

It will open your Heater Drafts early in the morning and thoroughly warm the house before the family rises.

It is an accurate time-piece, and will be found very useful in library, hall, bedroom or kitchen, in addition to faithfully performing its work in the cellar.

WITH EACH CLOCK

Is packed 36 feet flat link brass chain, extra heavy nickel plated; 1 japanned pulley; 5 galvanized pulleys with brass screw-eyes; 12 large and 12 small snaps, for fastening chain; 1 weight, nickel plated; 2 nickel plated rings; 2 nickel plated hooks, and all necessary screws.

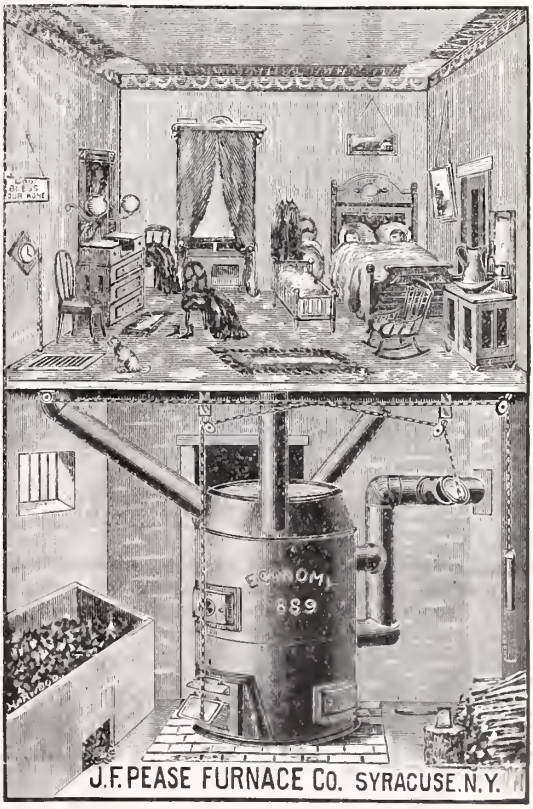
DIRECTIONS,

So that any one can connect Heater Chains to Clock, accompany each package.

PRICE, CLOCK COMPLETE, $15.

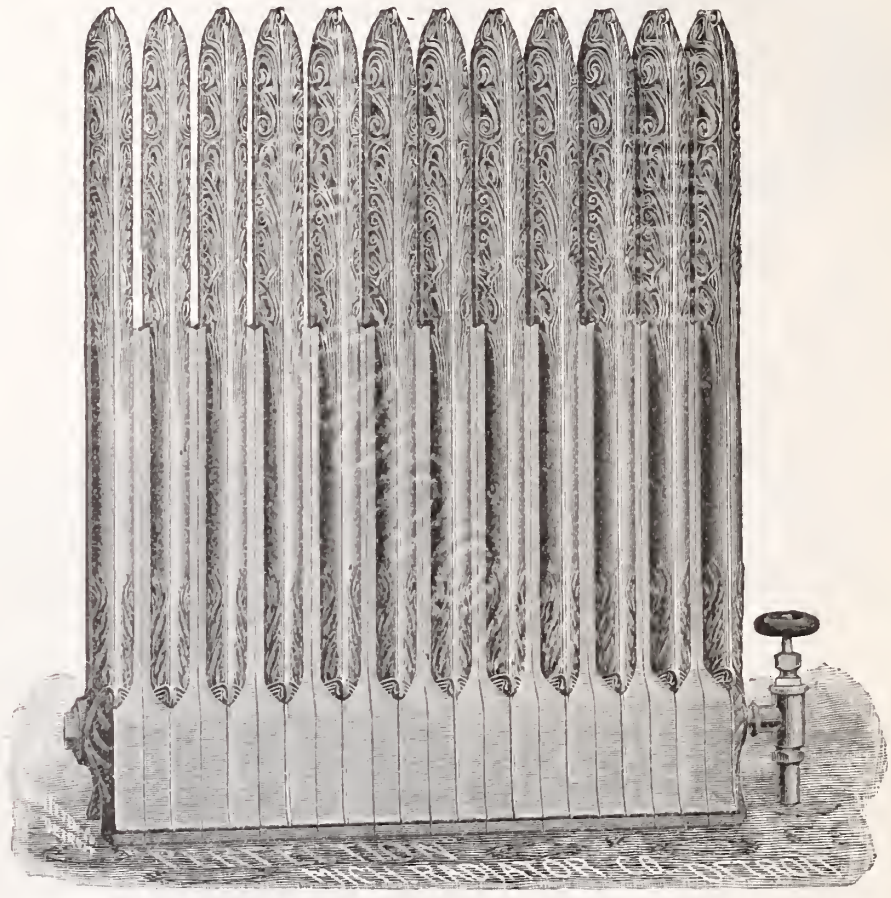
Automatic Switch, for changing circuits in connection with Electric Thermostats, $1.50. Sent express paid upon receipt of money order or New York draft. Manufactured by

THE AUTOMATIC CLOCK CO., Syracuse, N. Y.



Sold by J. F. PEASE FURNACE CO., Syracuse, N.Y., or any of their Agents

PERFECTION RADIATORS.



THE PERFECTION DIRECT INDIRECT

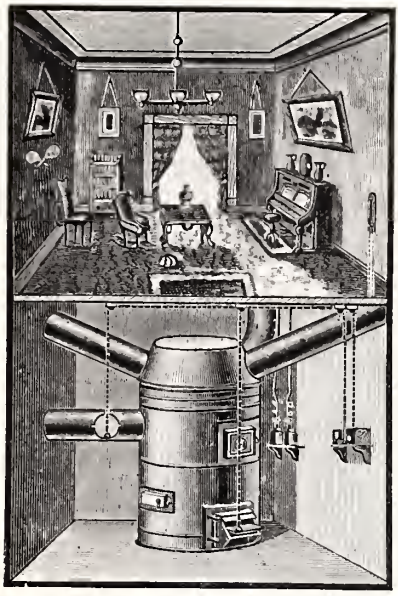
Is constructed so as to form a partially enclosed box of its base, into which cold air is introduced from outside of the house, and, coming into contact with the heated surface, is brought into the room at a high temperature, thus securing PERFECT VENTILATION. Cuts descriptive of the Direct for Steam or Hot Water, in 5 sizes, sent on application.

MICHIGAN RADIATOR & IRON Manufacturing Co.

Detroit, Mich.

THE

AUTOMATIC ELECTRIC HEAT REGULATOR.



AUTOMATIC, ECONOMICAL, PRACTICAL.

Ornamental, Reliable, Simple,

The temperature of your house perfectly under your control.

SATISFACTION GUARANTEED.

We want an Agent in every town and city of the United States and Canada. Furnace Dealers! Write for terms, and obtain the Agency for the best selling Regulator made. There is money in it. Address

CONSOLIDATED TEMPERATURE CONTROLLING CO.,

MINNEAPOLIS, MINN.

The thermostat is located on the walls of one of the rooms. This is connected by concealed wires with the battery and motor in the cellar. The operation is as follows: When the temperature of the room reaches the point at which the thermostat is set, it closes the circuit through the motor; this starts the motor and opens the check damper in the smoke pipe and closes the draft in front. When the temperature in the room falls one degree, then the motor is again started and reverses the operation, putting on the draft again.

SYRACUSE ELECTRICAL AND MANUF'G CO., Agents,

117 WEST WASHINGTON ST., SYRACUSE, N. Y.

HAIR · FELT

—FOR—

Wrapping Warm Air and Steam Pipes.

A full assortment constantly on hand, in thickness from ⅛ to two inches. Three feet or six feet wide at same prices.

Our Felt is the most perfect there is made, particularly in uniformity of thickness.

ESTABLISHED 1860.

LOWELL FELTING MILLS,

MANUFACTURERS AND DEALERS IN

HAIR FELT,

WHOLESALE AND RETAIL.

ADDRESS,

LOWELL FELTING MILLS,

LOWELL, MASS.

MARSH'S PATENT

ACME

AUTOMATIC

AIR-VALVE.

MANUFACTURED

IN NINE STYLES.

Over 50,000 Used in 3 Years

EVERY VALVE WARRANTED.

DESCRIPTIVE CIRCULAR AND PRICE-LISTS FURNISHED, AND DISCOUNTS QUOTED ON APPLICATION

SECTIONAL VIEW, FULL SIZE.

JAS. P. MARSH & CO.,

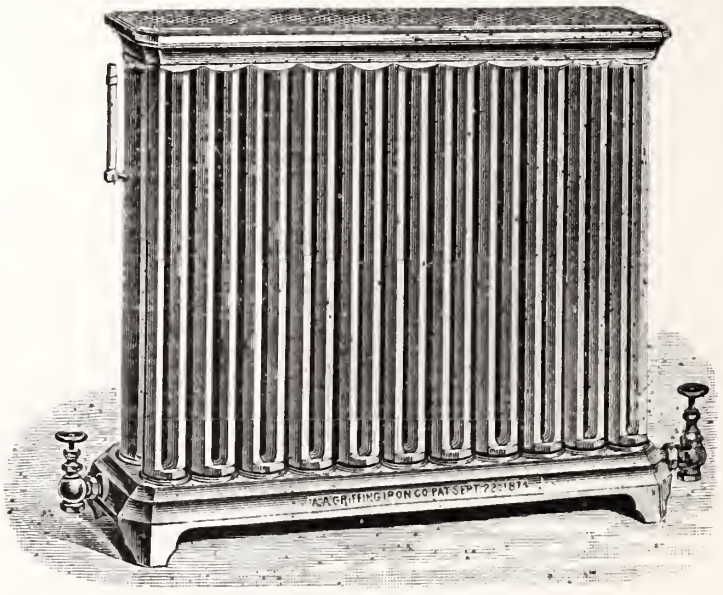
224 and 226 Washington St., CHICAGO.

OVER TWENTY MILLION SQ. FT. OF

BUNDY RADIATORS

NOW IN USE

NO PACKED JOINTS, ALL SCREW CONNECTIONS —HENCE NO LEAKS OR REPAIRS. TESTED TO ONE HUNDRED POUNDS PRESSURE BEFORE BEING SHIPPED.



MADE IN ONE, TWO, THREE AND FOUR ROWS OF LOOPS, IN ANY HEIGHT FROM 12 INCHES TO 45 INCHES, VARYING BY SINGLE INCHES.

BUNDY DIRECT RADIATOR, WITH BASE AND TOP.

BUNDY ELITE THREE-PIPE RADIATOR.

Our Claims of Superiority.

1. Full Measurement of Surface.
2. Positive Uniform Circulation.
3. Greatest Durability and Economy.
4. Handsomest Designs.
5. Greatest Variety.
6. Full Stock Constantly on Hand.
7. Simplicity, Compactness and Greater Efficiency than Any Other Radiator on the Market.

Send for Catalogue.

A. A. GRIFFING IRON CO.

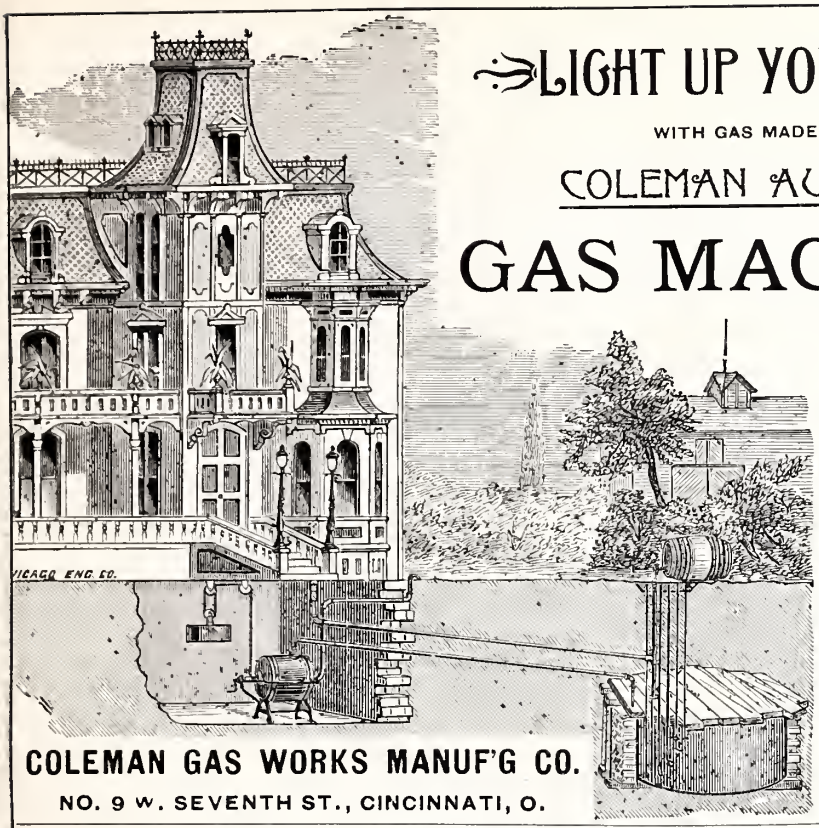
410 COMMUNIPAW AVENUE,

JERSEY CITY, N. J.

CHICAGO BRANCH, *130 DEARBORN ST.*

PHILADELPHIA BRANCH, *BUILDERS' EXCHANGE.*

(SEE PAGE 40).



LIGHT UP YOUR HOME

WITH GAS MADE BY THE

COLEMAN AUTOMATIC

GAS MACHINE,

And thereby have a well-lighted house, and at a moderate expense.

WRITE FOR

CATALOGUE

AND DESCRIPTIONS.

WE ARE ALSO

Sole Agents in Cincinnati,

—FOR THE—

ECONOMY HEATERS.

COLEMAN GAS WORKS MANUF'G CO.

NO. 9 W. SEVENTH ST., CINCINNATI, O.

THE ORIGINAL LEVELED IRON.

"McCULLOUGH" GALVANIZED SHEET IRON.

LEVEL, FLAT, FREE FROM BUCKLES.

McCULLOUGH IRON COMPANY TRADE MARK REGISTD. FEB. 4 1873.

FIRST QUALITY.

McDaniel & Harvey Co.

MANUFACTURERS OF

GALVANIZED SHEET IRON

—ALSO—

Charcoal Bloom Iron, Best Refined Black Iron (Harvey's Pat. Cleaned), *Corrugated Sheets, Black and Galvanized, Straight and Curved.*

SIXTEENTH ST. & WASHINGTON AVE., PHILADELPHIA.

CHETWYND W & H TRADE MARK

SECOND QUALITY.

H. W. JOHNS'

ASBESTOS

FIRE-PROOF, NON-CONDUCTING

COVERINGS.

FOR FURNACES, HOT-AIR PIPES, ETC.

33 PER CENT. OF FUEL SAVED.

DESCRIPTIVE PRICE LIST, FREE BY MAIL.

H. W JOHNS MANUFACTURING CO,

SOLE MANUFACTURERS.

ASBESTOS ROOFING, BUILDING FELT, ETC.

SECTIONAL PIPE & BOILER COVERINGS, STEAM PACKINGS, ETC.

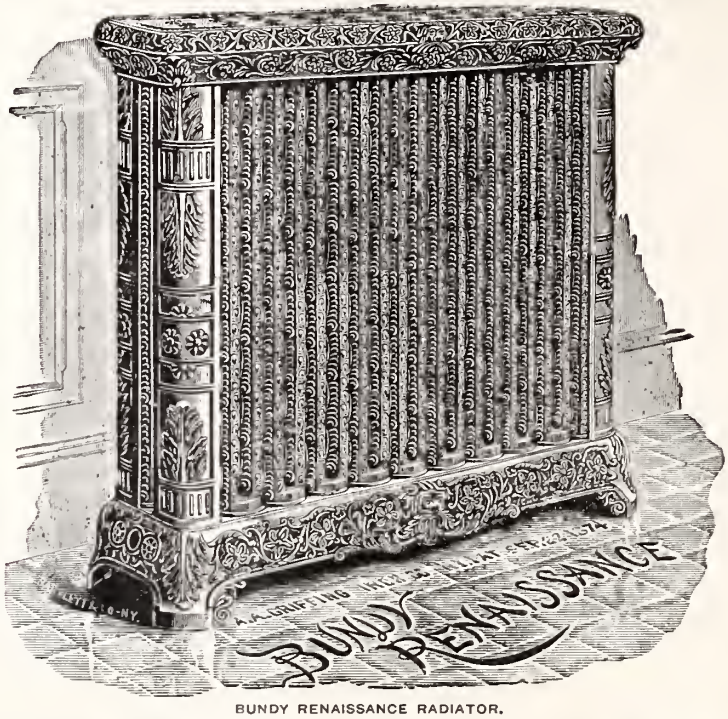
LIQUID PAINTS, FIRE-PROOF PAINTS, COATINGS, ETC.

87 MAIDEN LANE, NEW YORK.

CHICAGO. PHILADELPHIA. LONDON.

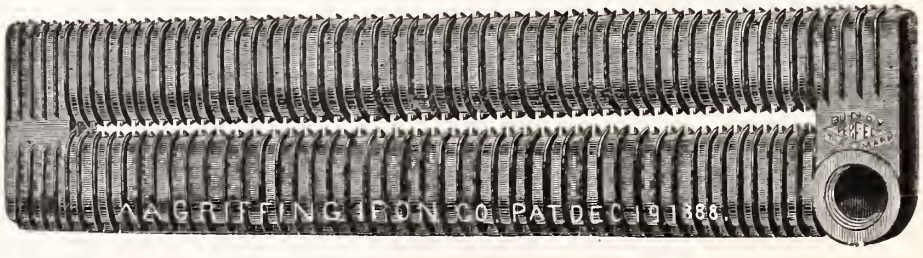
Bundy Renaissance Radiator,

THE HANDSOMEST RADIATOR MADE.



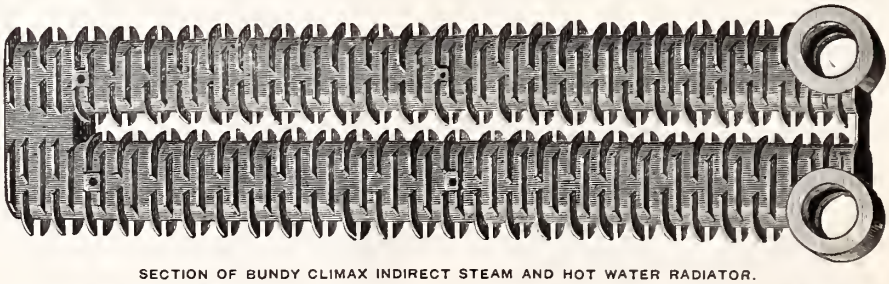
BUNDY RENAISSANCE RADIATOR.

SEND FOR LARGER CUT AND CATALOGUE.



SECTION OF BUNDY PERFECT INDIRECT STEAM RADIATOR.

One Joint Two Inches, all Duplicate Sections, Positive Circulation, Satisfaction Positively Guaranteed.



SECTION OF BUNDY CLIMAX INDIRECT STEAM AND HOT WATER RADIATOR.

FULL MEASUREMENT OF SURFACE, LARGE AREAS, EASY CIRCULATION.

A. A. GRIFFING IRON CO. 410 COMMUNIPAW AVE., JERSEY CITY, N. J. | CHICAGO OFFICE. - - 130 DEARBORN ST. PHILADELPHIA OFFICE, BUILDERS' EXCHANGE.

(SEE PAGE 38.)

The Economy Parlor Door Hanger.

Independent Axles. Wheels Composition Lined. Easily Attached.
Self-Adjusting. Large Bearings. Noiseless.
Always in Running Order.

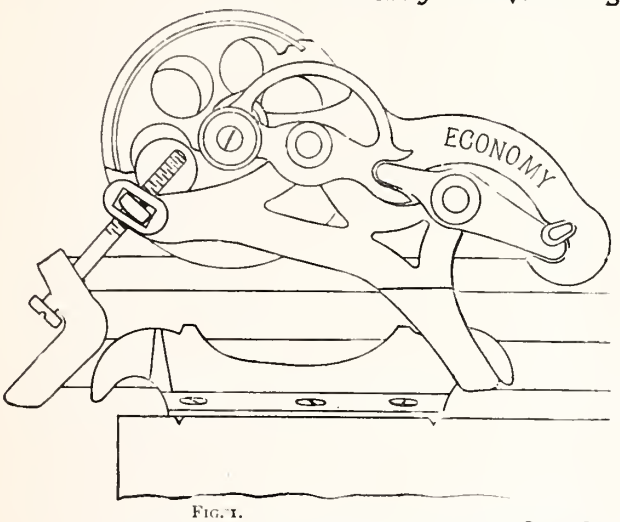
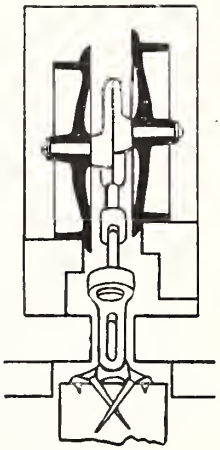


FIG. 1.



EVERY HANGER IS NICKEL-PLATED.

DESCRIPTION OF THE ECONOMY PARLOR DOOR HANGER.

Each wheel of the "ECONOMY" PARLOR DOOR HANGER is on an INDEPENDENT AXLE which entirely overcomes the trouble when one track settles more than the other, causing an unpleasant rubbing against the track and casing below by the "tipping" of the axle, carrying the door sidewise.

By reference to the accompanying cuts, it will be seen that the unevenness of the track causes the wheel of the "Economy" to rise perpendicularly, thereby overcoming the difficulty of the TOP of the wheel striking the SIDE of the studding as is the case where the two wheels are fixed to one shaft.

We call particular attention to the mode of attaching the "Economy" Hanger to the door.

There is no PLOUGHING or CUTTING of the door. When the Hanger is on the track ready for attachment, it is not necessary to remove the adjusting screw as in ALL OTHER Hangers. See loop Fig. 1, which is swung forward on the screw and dropped over the hook on the plate which enables us to hang single doors without making a false pocket in front, by placing the pocket castings at the rear edge of the door, opposite the hanger loop. Contractors who have used the "Economy" say that it is "the most complete and perfect Parlor Door Hanger on the market." It is so quickly and easily put on compared with any other Hanger, that there is a great saving of TIME, and TIME is MONEY. Full directions given with each set.

Manufactured by the **SYRACUSE DOOR HANGER CO.**, Syracuse, N. Y.

TUTTLE & BAILEY MANUF'G CO.,

MANUFACTURERS OF

Warm Air Registers, Ventilators,

ORNAMENTAL SCREENS, &c.

83 BEEKMAN STREET,

NEW YORK.


J·F·PEASE FURNACE CO.
SYRACUSE, N.Y., & TORONTO, ONT.
COMBINATION STEAM
AND
WARM AIR HEATERS
ECONOMY
WARM AIR
FURNACES